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A CHIRURGICAL
TREATISE
ON THE
DISEASES
OF THE
EYES.

CONTAINING
Proper REMEDIES, and describing
the Operations requisite for their Cures.

WITH
Some New DISCOVERIES in the Structure
of the EYE, that demonstrate the immediate
Organ of VISION.

SANT YVES

Written in *French* by M. De St. IVE S,
Surgeon-Occulist of the Company of PARIS.
Translated into *English* by J. STOCKTON, M. D.

This Book was so well receiv'd by the Members of the Royal Academy of Sciences, that it is sign'd with the Approbation of Messieurs BURETTE, WINSLOW, SYLVA, HELVETIUS, ARNAUD, PETIT, &c. Recommending it as the most useful and necessary Companion for all young Surgeons ever published.

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Printed for F. NOBLE, at Otway's Head, in St. Martin's Court, near Leicester-Fields; and J. WREN, opposite Featherstone's-Buildings, near Great Turnstile, Holborn.

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(Price Two Shillings and Sixpence.)

THEATRE

OF THE

DISSEAS

BY

2 E Y E

Author of the "Theatrical History of the Theatre Royal, Drury Lane, from its first Performance, in 1662, to the Present Time, 1791." &c. &c. &c.

Printed by J. DODD, at the Theatre Royal, Drury Lane, 1791.





T O T H E

H O N O U R A B L E

Colonel JOHN SMITH.

S I R,

I Am not a little pleased, that I have an Opportunity of paying my Respects to *You*, in so publick a Manner; and, at the same Time, of obliging my *Country* with a *Translation* of an excellent *French Book*, the most valuable that ever was wrote upon the Subject in any Language: I mean the learned and judicious *Monfieur de St. Yves's* Incomparable *New Treatise* of the *Diseases* of the *Eyes*, &c. To say any Thing, in the Behalf of his Performance, would appear like a *Compliment*; the *Work* itself sufficiently

iv DEDICATION.

ently proves the Abilities of the *Author*; and I doubt not but the Generality of the Learned in *Europe*, who have read it, have already passed their Verdict in his Favour. In the Description of the Parts and Functions of the *Eye*, he has proved himself to be an excellent *Anatomist*; in his demonstrating the immediate *Organ of Vision*, a curious and not impertinent *Philosopher*, and nice *Reasoner*; in his fixing the particular Distempers of the *Eye* to their particular Part, a *Physician* as well as a good *Surgeon*, and, in his Choice of Remedies proper to each Disorder, a *Gentleman* very well acquainted with the *Materia Medica*. His Experiments and Observations are plain, natural, and easy; and his Reasonings upon them prove him a Person of fine Judgment and Learning; and to finish all, his Descriptions of the *Operations*, necessary to each Distemper of the *Patient*, demonstrate him

D E D I C A T I O N. V

him to be as able a *Practitioner*, as any in *Europe*.

MONSIEUR *Mouchard* undertook, in 1722, to criticise upon this *Work*, but it had been better for him to have let it alone: There was very little of the *Gentleman* shewn, in his Treatment of Monsieur *St. Yves*; and less of the *Oculist*, in managing the Subject: It is true, he proved, in his Arguments, that himself *knew nothing at all* of the Matter, and that his *Letter* was of no other Service to the *Publick*, than its Producing an *Answer* from the ingenious Monsieur *St. Yves*, which is a great Ornament to his *Treatise*, and a strong Conviction of Monsieur *Mouchard's fallacious Way of Reasoning*, I had almost said, his *Ignorance*.

I HAVE translated M. *St. Yves's Answer*, which you will find, as a *Supplement*, at the End of this *Treatise*. I have done my utmost Endeavour to do as much Justice to M. *St. Yves*, in my *Translation*, as possibly

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possibly could be : If I have any where mistook his Sense, and given a different Turn, in my *Translation*, to his *Sentiments*, than what they really are in the *Original*, I readily ask Pardon. My Intention, in this *Translation*, was the *Publick Good* ; and I flatter myself I shall attain my Wish, and that none, who shall carefully read it, will think their Time mispent.

SUCH as my *Translation* is, I present it to You ; I believe you will find it worthy your Acceptance ; if not, remember that you are a *Friend*, and, of Course, must overlook *Faults* of this Nature in,

S I R,

Your Obliged Friend,

and Humble Servant,

From my House, in
Theobald's Court,
near Red - Lion -
Square, Holborn,
Sept. 28, 1741.

J. STOCKTON.



T H E

Author's P R E F A C E.

TH E Body of Man is composed of so great a Number of Parts, the Structure of them so regular and orderly, that the excellent Design, conspicuous through the Whole, ought to excite in us the highest Veneration for the Divine Former who has endow'd Man with the different Organs of Sense, that, by their Assistance, he may be capable to distinguish, in the circum-ambient Objects, whatever may be agreeable or injurious to him. Of all the Senses so necessary for the Preservation of Man, the Sight seems to be the most indispensably useful. And, to avoid too prolix an Enumeration of its Uses, let us only reflect on the deplorable State of those, who are deprived of it; let us call to Mind the exquisite Pains that attend the least Indisposition of this Organ. This Consideration induced me, out of the vast Compass of Surgery, to make choice of this Part, which hitherto seemed to me so little cultivated, though it deserves the most intense and close Application; and I confined myself to the particular Knowledge and Study of the Structure of the Eye and of its Diseases. As I had examined with the great-
est

viii The Author's P R E F A C E.

est Accuracy the different Functions, I thought proper to quit some Opinions which I had espoused jointly with other Natural Philosophers; I have endeavoured to clear some Doubts, which had hitherto prevailed concerning the immediate Organ of Vision, and likewise concerning the various Nature of Cataracts which had not been sufficiently explained by Authors, whose Judgment and Skill were defective from a Want of Experience and due Reflexion; I say farther, this Branch of Surgery had been so much disregarded, that some presumed to treat all those, as Quacks, that made it their chief Employment. Yet this Art has Principles and Rules as certain and as difficult to learn, as any other Branch of Surgery. The following Treatise will I hope, evince the Truth of this Assertion; for if we consider the great Number of Diseases, which attack the Eye, and likewise the delicate Operations their Cures require, the most indefatigable and intire Application seems hardly adequate to the Difficulties of this Science.

The Desire of being universally skilled in an Art, which includes so many Branches as Surgery does, is very laudable; but, as without doubt each of these Branches is very extensive, it must be allowed, that it is almost impossible to excel alike in each Branch; this Reason was of such Force with several, that they betook themselves to one particular Branch of Surgery. Neither ought we to
be

The Author's P R E F A C E. ix

be surprized, that those Persons who have applied themselves to one particular Branch of Surgery, from the reiterated Experience of a great Number of particular Facts which occurred to them, have acquired a more diffusive Knowledge than others. But whether a Man be universally skilled in any Art, or whether he professes only a Branch of it, if in his Sphere he conduces to the general Good, and communicates to the Publick what he knows to be useful, he equally acquits himself of the Duty he owes to the Society in which he lives, and the Publick is equally indebted to him.

I am conscious of the Danger an Author is exposed to, in publishing a Book. I know how much he ought to fear that Set of Men, who, incapable of any Production, value themselves for their Criticism, and place all their Merit in detecting Faults in the Works of others. I view in the same Light those Men who, from a false Shame of owning their Errors, still persist in their false Opinions, and are so biassed by Self-love, that their only Resource and Endeavours tend to darken Truths which they were not capable to discover. I am likewise convinced that among those excellent Men, who have brought Surgery to the Perfection in which it now flourishes, there are several as eminent for their Integrity and Justice as for their Knowledge and Skill; they seek after Truth, and respect it, where-ever they find it.

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The Desire of performing the Duty, each Member owes to the Community, determines me to imitate many excellent Authors, who, perhaps, had deprived the World of several profitable Works, had they hearkened to their own private Remonstrances: As I offer ingenuously what has appeared true to me, I hope whatever is defective in this Treatise will be excused; I freely impart the Knowledge I have attained, by my Application and Labour: It may serve to others as a Means for greater Improvement; and it may precaution the Publick, to what Danger the Sick are exposed, when they make use of Remedies given at random, and often by Persons ignorant of the Structure of the Eye and its Diseases, and unskill'd in the Virtue of those Remedies which they exhibit with so great Assurance.

*In order to methodise this Treatise, I have divided it into two Books; I have prefixed, to the first, a Description of the Parts of the Eyes and their Functions, and particular Rules to know the fundamental Principles of the Science; these Rules consist in a compleat Knowledge of the Disposition of the Sight, and its different Alterations. Afterwards I begin with the Diseases of the external Parts of the Eye: I likewise propose a Method of performing the Operation of the Fistula Lacrimalis, which generally prevents the Flux of Tears; I also teach a Method of curing several Diseases of the Eye, by applying
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The Author's PREFACE. xi

the Lapis Infernalis, which had never been practised before in those Cases. The second Book contains the Diseases of the different Parts that compose the Globe of the Eye, in which the Reader will find a particular Account of the different Sorts of Ophthalmies, and a new System how a Cataract is formed: In the same Book, I shew my Method of operating, when the Cataract is lodged in the anterior Chamber of the Eye; I likewise treat of two Diseases of the Retina, which, hitherto, were not supposed to attack that Part; I also mention several Sorts of a Gutta Serena. I treat only of those Diseases which I have seen and attended; I omit the trivial and insignificant: As to Diseases which happen very seldom, and likewise in singular Cases, I have annexed my practical Observations, in order to illustrate them, and to prevent any fatal Accidents, whensoever the like Cases may occur.

I have used my best Endeavours to render this Treatise Methodical, in an easy intelligible Stile adapted to the Capacity of every Reader, but chiefly of the young Surgeons who may peruse it. The Remedies, prescribed in this Treatise, are the most simple and easy of Composition; if I have made any Reserve, it is only in Favour of my Disciples. I am persuaded, whoever will apply themselves intirely to this Art, will discover, by their continued Practice, its most hidden Secrets; for which Reason, I hope those Persons, who

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have

xii The Author's P R E F A C E.

have the Preservation of their Sight at Heart, will find, in this Treatise, proper Means to prevent the Distempers of that Organ, and may learn how to preserve its full Strength, and to restore it, when any Ways injured, to its pristine State. I shall receive with Pleasure all Objections the Publick shall offer, relating to this Treatise; I shall acknowledge the Favour, and shall endeavour to give the most satisfactory Answers, in another peculiar Treatise.



THE APPROBATION

Of M. BURETTE, Counsellor, Physician, and under Library-Keeper to the King, Doctor Regent in the Faculty of Physick in Paris, Lectur and Professor Royal in the Royal College, Member of the Royal Academy of Inscriptions and Belles Lettres, one of the Authors of the Journals des Scavans, and Cenfor Royal of Books.

I HAVE read, by Order of my Lord Chancellor, a Book intituled, *A New Treatise of the Diseases of the Eyes*, by M. de St. Yves, Surgeon Oculist, and I judged its Impression would be serviceable to the Publick. Dated at *Paris*, this 16th Day of April, 1721.

Signed, BURETTE.

THE APPROBATION

Of Messieurs Winslow and Sylva, Doctors Regent of the Faculty of Physick in Paris, nominated by the said Faculty to examine this Book.

WE, the under-written Doctors Regent in the Faculty of Physick in the University of Paris, appointed by the Facul-

ty to examine a Book intitled, *A New Treatise of the Diseases of the Eyes*, by M. de St. Yves, Surgeon Oculist, having read the same with great Attention, have found this Work answer the great Reputation of the Author; and we have judged its Impression would be pleasing to the Judicious, and useful to the Publick. At *Paris*, this 28th of *August*, 1721.

WINSLOW and SYLVA.

The APPROBATION

Of Monsieur Emery.

HAVING seen the Approbation of the forementioned Doctors, the *Faculty* permits the Impression of the said Book. Given at *Paris*, this 20th of *January*, 1722.

Signed, EMERY, *Dean*.

The APPROBATION

Of M. Helvetius, Counsellor to the King, Inspector General of his Armies and Hospitals in Flanders, Doctor Regent of the Faculty of Physick in Paris, and Member of the Royal Academy of Sciences.

I HAVE read, with Attention, a Manuscript intitled, *A New Treatise of the Diseases of the Eyes*. The Exactness and
Perspi-

Perspicuity, which the Author observes in the Anatomical Description of all the Parts of this Organ, the Clearness in his Account of its Diseases, of their different Causes, and of the most efficacious Means to cure them, induce me to think the Impression of this Book will be very advantageous to the Publick. Dated at *Paris*, this 13th of *January*, 1722.

Signed, J. HELVETIUS.

THE APPROBATION

Of M. Arnaud, Surgeon in Ordinary to the Parliament, late Provost of the Sworn Surgeons, Company of Paris, and Demonstrator of Surgery and Anatomy in the Royal Garden of Plants.

I HAVE read the present Book, with Attention. This Work appeared to me worthy of the Author, compleatly skilled in this Branch of *Surgery*. He has followed the best Method of Authors who design, by their Writings, to improve and solidly instruct their Disciples.

HE first gives a true Description of the Structure of the Parts ; hence he infers, and by well judged Proofs he shews the Organ of *Sight* ; he delineates the Diseases which may affect this Organ, and the *Chirurgical* Operations proper for their Cures. This

Practice is conformable to our Principles, and the best Anatomical Observations. I am not surprized at the uncommon Talents of the Author; he has, long since, given us undoubted Proofs of his extensive Capacity. I hope this Book will conduce to increase the Number of good Proficients; and may be ranked amongst the most useful that have appeared in the *Republick of Letters*.

Signed, ARNAUD.

The APPROBATION

Of M. Petit, sworn Surgeon of Paris, late Provost of their Company, Demonstrator in Surgery, and Member of the Royal Academy of Sciences.

AMONG the several *Oculists*, who have wrote in our Days, some have only given us a Catalogue of *Operations*, which, they tell us, they have performed, without describing them; others have made a Collection of *Letters*, wrote in their Praise; they boast of their knowing many *Secrets*, which they reserve to themselves. 'Tis evident, they have Nothing in View but their own private Interest; neither do their Writings deserve to be regarded, but as mere *Advertisements*.

BUT

BUT M. *De St. Yves*, in his *Treatise*, presents you with an accurate Description of the *Eye*, and of the *Diseases* which afflict it; he faithfully proposes the *Remedies*, and describes the *Operations*, in which he has succeeded; he manifestly shews his Inclination of being serviceable to the Publick. Altho' I am convinced of the Excellency of this *Book*, I do not think the Publick any ways indebted to its *Author*; he was indispensably obliged to publish this *Treatise*, as a grateful Acknowledgment of the Justice the World has rendered to his Merit, these many Years.

Signed, PETIT.



A
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OF THE
C H A P T E R S
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A NEW
TREATISE
OF THE
DISEASES of the EYES.

A Description of the EYES.

CHAP. I.

*Of the Eye in general, and of the
Parts which inclose the Globe.*



AS the Diseases of the Eyes, that is, the distempered or preternatural State of that Organ, are the Subject of the ensuing Treatise, I think it necessary to prefix a Description of the Structure of the Eye, and of the Use of its several Parts. They may be divided into two Classes : The First com-
B prehends

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prehends these which inclose the *Globe* of the Eye ; the Second includes those which compose the *Globe*. The Parts, which encompass the *Globe*, are the Bones that form the *Orbit*, the *Eye-lids*, the *Glands*, the *Caruncula Lacrimalis*, and the *Fat* ; to these may be added the *Nasal Pipe*. The Parts, which compose the *Globe*, are the *Muscles*, the *Membranes*, common and proper, the *Humours* or transparent Bodies contained in them.

THE *Orbit* is a bony Cavity, in which the Eye is fixed ; it has a very large Opening. Its Bottom is very narrow, in which is the *Foramen Opticum*, or the *Optick Hole*. The *Orbit* is composed from seven Bones ; The superior Part is made of the *Os Coronale* or *Frontis* ; the *Os Maxillare* and *Os Mali* make the inferior Part, and Part of the Sides. That Part of the *Os Maxillare* which rises towards the great Angle, together with the *Os Unguis*, makes the Cavity which contains the *Lacrimal Bag*. That Part of the *Os Ethmoides*, commonly called *Os Planum*, makes the hinder and inner lateral Part of that Side next the great Angle : The *Os Sphenoi-*
des

des makes the hinder and lateral Part of the Side next the little Angle. Lastly, a small Part of the *Os Palati* makes the inferior and furthestmost Back-part of the *Orbit*.

THE *Eye-lids*, which cover the Fore-part of the *Globe*, are both composed of the Skin, bordered each with a Cartilage, called *Tarsus*, or *Comb*, and with Hairs, called *Cilia*, or *Eye-lashes*; they are furnished with Muscles for their Motion; the Skin of the Lids is more lax than in any other Part of the Body. The Cartilage of the upper Eye-lid is larger than that of the lower, its Breadth being about five Lines in its Middle; from whence it diminishes gradually towards the Angles, but it is narrower towards the Nose than towards the Temples.

THE Cartilage of the lower Lid is about two Lines broad, and keeps its Breadth in almost all its Length: The Cartilages grow thicker as they draw towards the Edge of the Eye-lids: The Conjunction of these Cartilages towards the Nose is called the *great Angle*, and that towards the Temples, the *little Angle*.

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THE Eye-lids have two *Muscles*, viz. one Proper and one Common; the First belongs to the Upper-lid, and serves to raise it; the Second is common to both Lids, and its Use is to shut them. The First called the *Elevator*, or *Attollens rectus*, of the upper Lid arises from the Fund of the *Orbit* at the upper Part of the *Optick Hole*, from whence it grows larger as it goes along, and is inserted in the Cartilage of that same Eye-lid; the Second, called *Orbicularis*, is composed of semicircular Fibres, which are inserted in the Circumference of the *Orbit*, and are joined by a pretty strong Tendon to the great Angle of the Eye, and to the Eye-lids which they cover even to their Cartilages, where they terminate: When they act, they shut the Eye by bringing the Eye-lids together. The Insides of the Eye-lids are covered with a Membrane which is adherent to their Edges, and afterwards covers the Fore-part of the *Globe*; it terminates in the Edge of the *Cornea transparent*. It is likewise joined to the Edge of the *Orbit*, for which Reason it is supposed to have its Origin from the *Pericranium*.

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vicranium. This Membrane, which is common to the Globe and to the Eye-lids, is called *Conjunctiva*: Upon examining it nicely, it appears covered with a second Membrane thinner and finer than the first: It seems to be a sort of *Epidermis*, which spreads itself insensibly over the *Cornea transparent*. Behind the *Conjunctiva* there lies another Membrane, formed by the Union of the *Aponeuroses*, or flat Tendons of the *Muscles*, of which we shall speak hereafter. This Membrane chiefly constitutes the *White* of the Eye; there is on the inner Edge of each Eye-lid, at the Place where they meet when shut, a Row of small Pipes, which appear like little Holes, and are the Extremities of several small Channels, which furnish a Humour that by its Unctuousity hinders the Tears from falling on the Cheeks, and turns them towards the Nose, to be conveyed from thence thro' Pipes, of which we shall treat hereafter. When this Humour becomes viscid, it forms the Wax or Gumminess of the Eye-lids.

THE *Glandula Lacrimalis* is seated at

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the Entrance of the superior Part of the *Orbit*, towards the little Angle. It sends out several little Channels opening at small Distances one from the other all along the Inside of the upper Lid. It filters continually through these Channels a Serosity (called *Tears*) which moistens the Fore-part of the Eye, facilitates the Motions of the Eye-lids, and entertains the Brightness and Transparency of the *Cornea*. The superfluous Part of this Serosity is received through two particular Apertures, situate in the inner Edge of the Cartilage of each Eye-lid, about three Lines Distance from the great Angle; they are called *Puncta Lacrimalia*, or the *Lacrimonal Points*, and resemble the broad Ends of two little Trumpets, in the Form of Pipes, uniting towards the Nose into one common short Conduit, which Conduit opens into a small Bag called *Saccus Lacrimonalis*, or the *Lacrimonal Bag*, seated in a *Sinus*, or Gutter, formed by the Union of the *Os Unguis* and *Os Maxillare*. From this Bag there goes a membranous Pipe called *Ductus Lacrimonalis*, or the *Lacrimonal Duct*, which terminates by a sort of Funnel

Funnel in the inferior Part of the Noftrils below the inferior Blades of the Nofe, and above the Vault of the Palate. This Conduit is inclofed in a long Channel called *Ductus Nasalis*, or the *Nasal Channel*, or *Duct*, which is a Hollow in the *Os Maxillare*, and is partly covered by the *Os Unguis*. The *Lacrimal Points* receive the lacrimal Serofity, which is difcharged from them thro' their Duct into the *Lacrimal Bag*, from whence it paffes thro' the Nofe, or goes away behind the Palate near the *Pharinx*, where it mixes with the Spittle. There lies, at the great Angle of the Eye, a Caruncle, or reddifh Button, commonly called *Caruncula Lacrimalis*: It directs the Tears into the *Lacrimal Points*. This Body, when nicely examined, feems to be glandulous, and feparates a Humour almoft like that of the *Ciliar Glands*. The Ufe of the Eye-lids is to cover one Part of the *Globe*, and fecure it from external Injuries, to which the Eye-lafhes contribute very much: And likewise by their Motions they equally diffufe the Serofity of the *Lacrimal Gland* over the *Cornea* for the preferving of its Transparency and Brightnefs. The Eye-

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lids also direct the Remainder of this Serosity into the *Lacrimal Points*. They likewise help to qualify the too fierce Impression of the Rays of an over-vivid Light.

THE great Quantity of Fat, which surrounds the Eye, not only guards it from the Hardness of the Bones of the *Orbit*, but, by lubricating its Muscles renders their Motions free and easy, and maintains every Part in a convenient Situation for the Performance of their several Functions.

C H A P. II.

Of the Muscles of the Eye.

THE *Globe* of the Eye has six *Muscles*, which on Account of their Direction are called *Strait* and *Oblique*. There are four *Strait*, and two *Oblique*. The first have different Names, taken from their different Use. The first of the *strait Muscles* is called *Elevator* or *Superbus*, the second *Deprimens* or *Humilis*, the third *Adductor*, and the fourth *Abductor*.

THESE

THESE four *Muscles* rise from the Bottom of the *Orbit*, at the Circumference of the *Optick Hole* ; from thence they advance beyond the Middle of the *Globe*, where they are inserted by their large thin *Tendons* which do all unite between the *Cornea Opaque* and the *Conjunctiva* ; then, covering the rest of the *Globe*, they advance as far as the *Cornea transparent*, where they terminate. One of the oblique *Muscles* is called *Obliquus Major*, or the *Great Oblique* ; the other is called *Obliquus Minor*, or the *little Oblique*. The *Obliquus Major* rises from the Fund of the *Orbit* by the Side of the *Adductor*, passes thro' the *Cartilaginous Pully*, situate near the Edge of the *Orbit*, above the *great Angle* ; then it forms a small *Tendon* which passes over the *Globe*, and is inserted by its Back-part on the Side of the little Angle, near the *Musculus Abductor*. The *Obliquus Minor* takes its Rise near the Edge of the *Orbit*, by the Side of the *Nasal Duct*, ascends obliquely towards the little Angle, passes under the *Globe* of the Eye, and has its Hinder-part joined to the *Tendon* of the *Obliquus Major*.

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THE different Names of the *strait Muscles*, partly denote their different Uses. When all those *Muscles* act equally alike and at the same Time, they keep the Eye in a perfect Equilibrium. When any two of the neighbouring *Muscles* act together, they move the Eye obliquely. If the *Elevator* and *Adductor* move together, they turn the Eye obliquely upwards, and towards the great Angle, and so of the others. If these *Muscles* act successively, they give a circular Movement to the *Globe*. As to the Use of the *Oblique Muscles*, I shall lay aside all other Opinions, and adhere to Mr. *Cooper's*, it being founded on their true Direction ; I say jointly with him, when these *Muscles* act together, they draw the *Globe* directly outwards, and, as it were, even with the Forehead ; but when the *Obliquus Major* acts alone, it turns the Eye obliquely downwards ; and when the *Obliquus Minor* acts alone, it draws the Eye obliquely upwards.

CHAP.

C H A P. III.

Of the Globe of the Eye and its
Parts.

THE Membranes of the Eye are usually divided into Common and Proper; we call *Common Membranes* not only that *Membrane* (to which we gave the Name of *Conjunctiva*) that joins the *Globe* to the *Eye-lids*; as well as the Membrane formed by the Tendons of the four *strait Muscles*, which in our Opinion constitutes the *White* of the Eye; but also those which cover all the *Humours*. The Name of *Proper* is apply'd to these which cover each Humour in particular. The first Membrane of the *Globe* of the Eye is called *Cornea*, on Account of its Consistence, or Transparency like Horn; it incloses all the *component Parts* of the *Globe*. The Fore-part is transparent, the rest opaque; for which Reason the Middle of its Fore-part is called *Cornea Transparent*, the remaining Part of its Extent *Cornea Opaque*, or *Sclerotica*; the Thickness of which diminishes gradually as it approaches to the transpa-

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transparent Part. The Convexity of this Part jets more out than the rest of the *Globe*. Both the Parts of this Membrane may be divided into several parallel *Laminae* or *Lays* lying one over another. This Membrane also adheres by it's back Part to the *Optick Nerve*, of which we shall speak hereafter : It seems to be a Continuation of it, and in the rest of its Extent is joined at distant Spaces to the *Choroides* by Blood-veffels. The second Membrane is called in general the *Uvea* or *Choroides*. It may be divided into two Parts, the first and the greatest lines all the inner Surface of the *Cornea Opaque*, and is closely joined to it at the Place of its Union with the *Cornea Transparent* by several Fibres which seem to be tendinous, and form a very narrow circular Band called *Ligamentum Ciliare*, or *Ciliar Ligament* ; I shall, jointly with several Anatomists, call this Part *Choroides*. The second Part, where the different Colours appear thro' the *Cornea Transparent*, is called *Iris*. In the Middle of which is a round Hole having a black Speck called *Pupilla* or *Sight* of the *Eye*. The *Choroides* may be divided
into

into two principal Blades from the *Optick Nerve*, as far as the *Ligamentum Ciliare*. The inward Blade produces, at the Place of the said Ligament, beaming and waving Folds in the Form of a Star, which may be called the *Ciliar Productions*, on account of their Resemblance with the *Cilia* or *Eye-lashes*. These Foldings or Expansions receive a fine Net-work of Capillary Vessels from these of the *Choroides*, of which we shall speak hereafter, when we treat of the Nutrition of the transparent Bodies. The inward Blade in its Inside, as the outward in its Outside, and the back Part of the *Iris* are lined with a *black Velvet*; some take this *Velvet* to be a *Membrane*. The second Part or the *Iris* is thicker than the first, and is composed of fleshy Fibres disposed in the Manner of Rays, or Lines drawn from the Circumference to the Center; these Fibres are like so many *Muscles*, they take their Rise from the great Circumference of the *Iris*, and are inserted towards the Hole of the *Pupil*, where they terminate in a narrow thin *Circular Muscle*, of which the lesser Circumference makes the *Pupil* which is dilated by
the

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the *radial* or *strait Fibres*, and contracted by the *Circular*. There is a Space between the *Iris* and the *Cornea transparent*, which is called the *anterior* or *foremost Chamber*; and another behind the *Iris* called the *posterior* or *hindermost Chamber*. These two Spaces contain the *Aqueous Humour*, and for this Reason they are called the *Chambers* of the *Aqueous Humour*.

THE third *Membrane*, called the *Retina*, is a Production of the *Optick Nerve*; the two *Optick Nerves* rise from the Eminences of the Brain, called *Talami Nervorum Opticorum*, or *Beds* of the *Optick Nerves*, from whence they proceed forwards, and unite above the *Sella turcica* or *Saddle* of the *Os Sphenoides* near the *Infundibulum*; then, immediately separating again, they pass out of the *Cranium* thro' the *Optick Holes*, and are inserted in the back Part of the *Cornea Opaque*, each Nerve to it's peculiar Eye. The Body of each Nerve is wrapped up in the *Dura* and *Pia Mater*. The first incloses it like a Sheathe, which is united to the *Cornea Opaque* without producing it. The *Pia Mater* has many little Cells, at some Distance

stance from one another, filled with a medullary Substance, like that of the *Brain*. The *Optick Nerve*, at its Entrance into the Eye, is, as 'twere, straitened, and forms a *whitish Button*, from the Circumference of which the *Retina* rises, and lines the inner Surface of the *Choroides* as far as the *Ciliar Circle*, where it seems to terminate. It appears whitish and almost pellucid, somewhat like wetted Wafers, but more transparent. It has several Vessels, as we shall shew hereafter.

THE *transparent Bodies* of the *Globe* of the Eye, commonly called *Humours*, are three; viz. the *Vitreous*, the *Cristalline*, and the *Aqueous Humour*. The *Vitreous Humour* is immediately inclosed by the *Retina*, which seems to be in Nature of a Mould to the greatest Part of its Surface, the Forepart of which has a Cavity, like the *Bezil* of a Ring, to receive and lodge the *Chrystal-line*, and may be called the *Socket* of the *Vitreous Humour*. The *Vitreous Body* is composed of several very fine, transparent, membranous Pellicles, which are so disposed that they form a Number of little Cells, filled with a Humour almost like
the

the White of an Egg. The *Vitreous Humour* is also covered with a fine Membrane, adhering to the *Retina*, at the Place of the *Ciliar Circle*, where several black Rays are seen all round the *Cristalline*, and are improperly called *Ciliar Fibres* or *Processes*; for they are only small Cavities or Channels which receive the *Ciliar Expansions* already mentioned; and which retain the black Velvet of these *Expansions*, after they have been taken off by separating the *Choroides*. This Membrane seems to be divided in it's Fore-part into two Blades, one of which covers the Fore-part, the other the Hind - part of the *Cristalline*, and keeps it fixed in the *Vitreous Humour*.

THE *Cristalline* is a *Lenticular Body*, more convex behind than before, composed of several vasculous transparent Layered one upon another, somewhat like the different Pellicles of an Onion; it lies in the Socket of the *Vitreous Humour* between the Blades of the Membrane of that *Humour*. It is placed in the Middle of the Fore-part of the *Vitreous Humour*, opposite to the *Hole* of the *Pupil* at some Distance from the *Iris*, which Space makes
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the *posterior Chamber* of the *Aqueous Humour*, as we have already observed ; and, together with the *Vitreous Humour*, it fills almost the whole Cavity of the *Globe* of the *Eye*. The *Aqueous Humour* is a Serosity very fluid, limpid, and transparent, somewhat viscous ; it fills exactly the two *Chambers* which have a Communication by Means of the *Pupil*. The *posterior Chamber* is very small, and contains very little of the *Aqueous Humour*. All these Parts, which we have described, have *Nerves*, *Arteries*, and *Veins* of which I shall treat,

C H A P. IV.

Of the Nerves distributed to all the Parts of the Eye.

THE external Parts of the *Eye*, viz. the *Skin* of the *upper Eye-lid*, the superior Part of the *Orbicular Muscle*, the *Lacrimal Gland*, and the *Lacrimal Bag* receive *Nerves* from the *first Branch* of the *fifth Pair*. It enters the *Orbit* by the

C *Sutura*

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Sutura Sphenoidalis or the *Sphenoidal Suture*, where it is divided into three *Branches*, viz. one *superior* which passes over the Eye till it arrives at the *Foramen Lacerum* or the *Eye-brow-hole*, thro' which it goes out of the *Orbit*; instead of this *Hole*, thro' which it goes out of the *Orbit*, there we often find only a *Fissure*. This *Branch* is distributed to the *Skin*, to the superior Part of the *Orbicular Muscle*, to the *Fore-head*, and to its *Muscles*.

THE two other *Branches* are divided into *internal* and *external*. The *internal Branch* runs obliquely towards the *great Angle* of the *Eye*, sends out in its Way a *Twig* which re-enters the *Cranium* thro' a little *Hole*, called *Orbiter internus* or *inward Orbiter*, crosses the *Os Ethmoides*, and gives several *Twigs* to the *Membrana Pituaria* of the *Nose*; from whence this *Branch* continues its *Course* towards the *great Angle*, where it is distributed to the *Lacrimonal Bag*, to the adjacent Part of the *Orbicular Muscle*, and to the *Skin*. It also gives another small *Nerve*, which joins the *Oculorum Motorii*, and there forms a small

a small *Ganglion*, of which I shall speak hereafter. The *external Branch* of the *Optalmick Nerve* passes towards the *little Angle*, branches out in the *Glandula Lacrimalis*, and supplies the adjacent *Parts*.

THE external *Parts* of the *Eye* receive also *Nerves* from the *second Branch* of the *fifth Pair*. This *Branch*, called *Ramus Maxillaris Superior*, goes out of the *Cranium* by a peculiar Hole of the same Name (*Foramen Maxillare*) sends off a *Twig* which, piercing the *Os Mali*, is spent on the adjacent *Part* of the *Orbicular Muscle*, and on the *Skin*; it also sends off another *Slip*, which, running down, is distributed to the *Dentes Molares* or *Grinders*, and to the back *Part* of the *Palate*. This *Branch* afterwards enters the long *Channel* which lies in the lower *Part* of the *Orbit*, and, having bestowed some *Twigs* to the *Sinus Maxillaris* and to the *Teeth*, it goes out thro' the *Orbiter externus*, or the *outward Orbiter*, under the *Orbicular Muscle*, and communicates with some *Twigs* of the hard *Portion* of the *Auditory Nerve*.

THE *Muscles* of the *Eye* receive their *Nerves* from the *third*, *fourth*, and *sixth* *Pair*, commonly called *Nervi Pathetici* or the *Pathetick Nerves*. The *sixth*, which makes the *Root* of the *intercostal Nerve*, is only for the *Abductor Muscle* of the *Eye*. The other *Muscles* are furnished with *Nerves* from the *third Pair*, called by Anatomists *Oculorum Motorii*. This *Pair*, at its *Entrance* into the *Orbit*, is divided into four *Branches*, one of which furnishes the *Musculus Attollens* of the *Eye*, and the *Elevator* or *Raiser* of the upper *Eye-lid*; another supplies the *Musculus Deprimens*, a third is for the *Musculus Adductor*, and the fourth, for the *little Oblique*. It also sends off another *Branch* which communicates with the *little Nerve* of the *Ramus Optalmicus* or the *Optalmick Branch*, as we have already noticed, and forms with it a small lenticular *Ganglion*. This *Ganglion* sends off several *nervous Twigs*, which throw themselves all round the *Optick Nerve*, pierce the *Cornea Opaque* and glide between it and the *Choroides* over which they pass, and then are distributed to the *Iris*; in their *Passage* over the *Choroides*,
each

each of them supplies it with *nervous Filaments*, that become invifible, in the ſame Manner the *Cutaneous Nerves* are imperceptible in the *Skin*.

AFTER the *Choroides* is ſupplied from the before mentioned *nervous Filaments*, they paſs on to the *Iris*, and there are divided into two Slips, one of which is inserted in the *Ciliar Circle*, and the other in the *beaming Muſcles* of the *Iris*.

CHAP. V.

Of the Distribution of the Blood-Veſſels, which ſupply the Membranes of the Eye with Nourishment, and maintain the transparent Bodies of the Eye.

THE *Carotid Arteries* furniſh the *Eyes* with *Branches*, which are not always the ſame in Number; they paſs through the *Cornea Opaque*, moſtly at the back Part of it, towards the *Optick Nerve*, and, having beſtowed ſome *Veſſels* to it,

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they pass thro' it by several little Branches which are distributed to the *Choroides*, of which the principal proceed almost directly, between the Scales of this Membrane, to the *Iris*. These Branches form, by their Communication here and there in the Duplication of the *Uvea*, an *Arterial Circle* which is not smooth, but plaited at small Distances, both within and without. The Fore-part of this *Arterial Circle* sends off several *Capillary Vessels* to the *Iris*, and to its *Muscles*; it also supplies a great Number of very fine short *Vessels* that terminate in the anterior or external Part of the Circumference of the *Uvea* near the Edge of the *Cornea transparent*; they open immediately into the *Anterior Chamber*, and furnish the *Aqueous Humour*, according to the Opinion of Mr. *Hovius*, to whom this Discovery is owing. The back Part of the *Arterial Circle* produces principally the *Vasculous Tissue* which forms the *Ciliar Expansions*, vulgarly called *Processes*, and gives imperceptible *Vessels* to the *Ciliar Circle* or *Ligament*, which lies at the Circumference of the *Cristalline*, as likewise to the neighbouring *Vitreous Humour*,

Humour, and to its *Membranes*. The *Ramifications* of the great Branches, after they have pierced the *Cornea Opaque*, are distributed into the Blades of the *Choroides* in the Manner of Semicircular Lines, heaped together and mixed one with another, and there produce the fine *black Velvet*, which tinctures its inner Surface, and that of the *Uvea*. They also give some to the *Retina*, and having past thro' it, they send off several very fine *Capillary Vessels* for the Maintenance of the *Vitreous Humour*, and of its *Membrane*: The *Retina* has also *Vessels*, the *Trunk* of which comes out of the *Optick Nerve*.

CHAP. VI.

Of the Vessels which carry back the superfluous Part of the Blood and Humours, after the Membranes and transparent Bodies of the Eye have been supplied.

AFTER all these Parts have received due Nourishment, the Superfluity returns thro' *Veinous Vessels* or little *Veins*, proportioned to each Part in particular; they are united on both Sides, in the Duplication of the *Choroides*, in small *Trunks* which open into the *Cornea Opaque*, where, having received several *Capillary Veins*, they pass from the Inside to the Outside, and are re-united with the *Jugulars*. The *Aqueous Humour* being poured immediately into the *Anterior Chamber*, by peculiar *Arterial* Openings, meets with particular *Veinous Vessels* in the *Posterior Chamber* towards the Circumference of the inner Surface of the *Uvea*, which carry it back into the *Blood-Vessels*; so that, as fast as this Humour enters the Eye by the *Ves-*
sels

sels adapted to bring it to the *Eye*, it finds others which carry it out of the *Eye*; and at the same Time facilitate the Course of the *Blood* into the *Capillary Vessels*, according to Mr. *Hovius*. This Author has found particular *Vessels* for the Nutrition of the *Cornea transparent*: They spring from these of the *Lacrimal Gland*, of the *Fat*, and of the *Muscles*; and, gliding into the *Conjunctiva*, they creep between the Scales of the *Cornea transparent*.

THE Remainder of this nutritious Juice returns partly by the like *Vessels* proportioned to meet the *Veins*, and partly ouzes thro' the Pores of the external Surface of the *Cornea transparent*, in order to keep its Surface clean and smooth. 'Tis observed, that, if a *human Eye* be taken out of the *Orbit*, and prefs'd, an infinite Number of Drops will be seen to ouze thro' the Pores of the *Cornea transparent*, and appear like a Dew on the outward Surface of that Membrane.

It seems apposite to make some Reflexions on the Discovery of Mr. *Hovius*, concerning the *Arteries* which bring the *Aqueous Humour* to the *Eye*, and the *Veins* which

which carry it back. As this Discovery was made by the Injection of a certain Liquor into the *Arteries* and *Veins*, it may reasonably be supposed, that this Injection, by forcing the fine delicate *Vessels* of the *Eye*, might consequently shew a false Passage. For my Part, I think it far more probable, that the *Aqueous Humour* is produced in the *Eye* by a *Transudation* or Ouzing thro' the *Cristalline* and *Vitreous Humours*, and that it is nothing else but the more fine limpid Part of their nutritious Juice, which, having filled the Spaces between the *Cristalline* and the *Cornea Transparent*, escapes thro' the Pores of that *Membrane* to make Room for the *Humour*, which is to be produced a-new. And this will appear the more credible, if due Attention be given to the following Remark, that the Fore-part of the *Vitreous Humour* always contains in its little Cells some *Aqueous Humour*.

CHAP. VII.

Of the Use of the different Parts of the Eye, which serve to modify the Visual Rays.

ALL the Parts, which compose the *Globe of the Eye*, are the principal Instruments of *Vision*; but, in order to understand in what Manner they contribute to it, we must observe that the *Light* is emitted on all Sides from every Point of a Luminous Object by an infinite Number of Lines, called *Rays*, Part of which, passing thro' the *Humours* or *transparent Bodies* of the *Eye*, make their Impression on the *Choroides*, from whence, by Means of the *Nerves*, it is transmitted to the *Brain*. 'Tis likewise necessary to observe that all the *Rays*, as they pass thro' the *transparent Bodies* of the *Eye*, do not keep their first Direction; for as the Surface and Solidity of these Bodies are different, and as the greater Part of the *Visual Rays* fall obliquely on their Surfaces, they must change their Determination either by diverging, or by acceding

acceding to a *Perpendicular*. These Changes of Determination, which Natural Philosophers call *Refractions*, are thus accounted for: When a *Ray* of *Light* falls obliquely on the Surface of a *transparent Body*, whose Solidity is greater than that of the *Medium* thro' which the *Ray* passes, it is refracted acceding to the *Perpendicular*; but if the Solidity of the *Medium* is greater than that of the *transparent Body*, on whose Surface the *Rays* fall, then the Refraction deviates from the *Perpendicular*. These different Changes of Determination in the *Rays* of *Light* are occasioned, because their Passage thro' the *transparent Bodies* is free and easy in Proportion to the Solidity of these *Bodies*.

WE have already observed, that from each Point of an Object there flows an infinite Number of *Rays* which are scattered on all Sides; the *Rays*, which fall on that Part of the *Cornea*, opposite the *Pupil*, form a *Cone*, the *Apex* of which is in the *Object*, and the *Base* in the *Cornea*, so that each Point of a Luminous Object has a *Cone* of reflected *Rays* which corresponds with it; all these *Cones* have one common

Base

Base on the *Cornea*: These *Rays*, in their Passage thro' the *transparent Bodies*, undergo different *Refractions*, and by this Means are brought together in the *Fund* of the *Eyes*, where they form as many little *Cones* opposite to the Former; these *Cones* are so disposed, that their *Bases* correspond with these of the Former, whilst their *Points* terminate in the *Fund* of the *Eye*. The first may be called *Objective Cones*, and the Latter *Ocular Cones*. The *Points* of the *Ocular Cones*, falling on the *Fund* of the *Eye*, project the Image of the Object. Both these *Cones* form by the Concourse of their *Bases*, if the Expression may be allow'd, *Optick Plexus* or *Bundles*, the which as they pass thro' the *transparent Bodies*, and chiefly thro' the *Cristalline*, intersect each other; so that the *Objective Cones* of one Side form the *Ocular* of the opposite Side: For Example, the *superior Objective* form the *inferior Ocular*, and the *Ocular Cones* of the right Side send off the *Objective* to the left Side; but the *Objective Cones* which fall perpendicular, and suffer no *Refraction*, produce *Ocular Cones* of the same Direction; from this

Intersection

Intersection and Concourse of these different *Conick Plexus* the Image of the Object, painted in the *Fund* of the *Eye*, is inverted. Natural Philosophers commonly describe each of these *Cones* by three *Lines* or *Rays* which, flowing from the *Point* of a Luminous Object, diverge as they approach the *Pupil*, and are afterwards united in the *Fund* of the *Eye*, where they make but one *Point* like that which flows from the Object: And, that their Draughts may be the less confused, they make use but of three *Cones*, which cross one another in the Manner I have described. Some represent each of these *Cones* by a single *Line*, so that in their Draughts there are but three *Lines*, which intersect one another, between the *Object* and the *Fund* of the *Eye*.

THE too great Convexity, or the Want of a sufficient Convexity in the *Cristalline*, occasions the Convergence of the Points of the *Ocular Cones*, either before they arrive at the *Fund* of the *Eye*, or beyond it, for which Reason the Images there projected are confused. When the *Cristalline* is too convex, it unites the *Rays* too soon.

This

This is the Defect of the *Myopes* or *Short-sighted*; their *Sight* is helped by *Concave Glasses*, which make the *Rays* of *Light* diverge or scatter, so that they are not united but at their proper Distance. On the Contrary, if the *Cristalline* be flat or not convex enough, the *Ocular Cones* are not united in due Time; Persons, who have this Defect, are called *Presbytæ*: *Convex Glasses* are serviceable to them, for they make the *Rays* of *Light* converge, and so bring them together, by which Means they are united in their proper Distance.

THE *radial* or *beaming* Fibres of the *Pupil* dilate it to receive the greater Number of *Rays* when the *Light* is weak and small, or when the Object is at a great Distance; the *Circular Fibres* contract it to admit but few *Rays*, when the *Light* is very great, or when the Object is very near.

HAVING briefly explained the Use of these Parts which *modify* the *Visual Rays*, we shall now treat of the immediate Organ of *Vision*.

CHAP. VIII.

Of the immediate Organ of Vision, which contains Rules and Principles to know the Alterations incident to the Sight.

NATURAL Philosophers are divided in their Opinions concerning the immediate Organ of *Vision*. M. *Descartes* and his Adherents pretend, that the *Retina* receives the Impression of *Light* reflected from Luminous Objects, which is transmitted, by Means of its *Fibres*, to the Place destined for Sensation. M. *Mariotte* and several others say, the *Choroides* receives the Impression, and that the *nervous Filaments* of this Membrane, which they look upon as an Expansion of the *Pia Mater*, convey it afterwards to their Origin.

By my Practice in the *Diseases* of the *Eyes*, I have made some particular Discoveries concerning *Vision*; I have found by a bare Inspection of the Alterations incident to the *Sight*, that the *Retina* is not its immediate Organ, that it only serves to *modify* the Passage of the *Rays* of *Light* which

which make their Impression on the *Choroïdes*, from whence, by Means of the *Nervous Filaments*, it is continued to the *Brain*: This Reason seems to demonstrate M. *Mariotte*'s Opinion to be the best, tho' it is not followed by many Natural Philosophers; the Proofs he has offered, in Defence of his Opinion, were not sufficient to convince the Judicious of its Truth. His Opponent, M. *Paquet*, has offered very weak and dubious Reasons.

I HAVE found by a great Number of Observations, that the different Degrees of Weakness of *Sight* were always attended with a like Degree of Weakness in the Movement of the *Iris*; so that, by an Inspection of the Movement of the *Iris*, I was able to judge, for the most Part, infallibly of the Degree of *Sight*, before the *Patient* even told me; besides, I have remarked, when the *Sight* is entirely lost, that the *Iris* remains either dilated or contracted, without any apparent Movement in all Degrees of *Light*. In order to discover the Truth of one of these Opinions, concerning the immediate Organ of *Sight*, I thought these Practical

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Remarks were not sufficient to clear this Point, without adding some *Physical Experiments*, and some Observations on the Structure of the Parts; for which Reason I made choice of the following Experiment. Let an *Eye* be taken, and after you have stripped from the back Part of the *Globe*, just at the Entrance of the *Optick Nerve*, all the Integuments of the *Choroides*, still taking care to preserve that Membrane intire, if then a lighted *Wax Candle* be placed in a *dark Room* before the *Pupil* of that *Eye*, the Image of the *Candle* shall appear inverted on the *Choroides*. Afterwards, if the *Choroides* be taken off without damaging the *Retina*, and the *Light* be placed as before, it will appear projected on an oiled Paper, about two Lines Distance beyond the *Retina*. Tho' this Experiment be very simple, it seems to prove, that the *Choroides* is the immediate Organ of *Vision*; and that the *Retina*, by Reason of its Transparency, serves only to modify the Pencils of the *Rays* of *Light*, which pass thro' that Membrane.

For which Reason the *Retina* may be compared to a *Glass* thro' which the *Light* only

only passes, and the *Choroides* to the *Quick-silver* of a *Looking-Glass*, which receives the Images of Objects that pass thro' the *Glass*, and by which the Representation of Objects is made. The subsequent Discovery, which shews a close Union between the *Choroides* and the *Optick Nerve*, corroborates my Opinion: If the *Optick Nerve* be sever'd in two, together with the Membranes of the *Globe*, the *Choroides* will appear, as 'twere, lodged in the *Optick Nerve*, about the Origin of the *Retina*, by very fine Lays which are intermixed with the Substance of the *Optick Nerve*, as may be distinguished from their different Colour. This is more clearly seen in the *Eye* of an *Ox*, than in the *Eye* of a *Man*, or a *Horse*; in that of an *Ox*, the Traces of the Substance of the *Choroides* may be perceived in the Substance of the *Cornea* *Opaque*.

BESIDES, as I am assured, the *Light*, which makes its Impression on the *Choroides*, is likewise the Cause of the Contraction and Dilatation of the *Iris*, I judged this twofold Action could not be performed but by some *Nervous Filaments* which com-

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municate with the *Choroides* and the *Iris*; this engaged me to examine with Care the *Nervous Filaments* sent off by the little *Lenticular Ganglion*, formed by the Union of a Branch of the *third Pair*, and a Branch of the *fifth Pair* of Nerves: This Ganglion affords several *Nervous Filaments* which creep about the *Optick Nerve*, afterwards they pierce the *Cornea Opaque*, and glide between this Membrane and the *Choroides*; but, before they are distributed to the *Iris*, they are divided into several *Filaments*, some of which are lost in the *Iris*, and some in the *Choroides*, where they disappear in the same Manner the *Cutaneous Nerves* are hid in the *Skin*.

THIS Distribution of the *Nerves*, joined to the Knowledge I have of the Movement of the *Iris*, induced me to think, the *Choroides* is the immediate Organ that receives the Impression of the luminous *Rays* reflected from Objects, and their Images are projected on that Membrane, in the Manner I have explained. I take the *Retina* to be a Sort of *Epidermis*, which modifies this Impression, and, as 'twere, deadens the Violence of it; and, without this Membrane,

Membrane, the same Uneasiness would affect the Organ of *Sight*, as would happen to these of the *Touch*, *Smell*, or *Taste*, were they deprived of the fine uniform Membrane which covers them. In short, the Texture of the *Retina* seems to declare its Use, for it is transparent, softish, and the *Light* passes thro' it, as appears from the foregoing Experiment. Hence may be inferred, that this Membrane is no more instrumental to the *Sight*, than the *Epidermis* is to the *Skin* for the Sense of *Feeling*; besides, as the *Retina* is intirely composed of the *Medullary* Substance of the *Optick Nerve*, there is Reason to presume that, on Account of its Softness, it is incapable to transmit the Impression of the luminous *Rays* to the *Brain*.

My Sentiment of *Vision* is chiefly founded on this Correspondence of the *Sight* with the Movements of the *Iris*. Indeed, these different Motions of the *Iris*, proportioned to the Strength or Weakness of the *Light*, seem to depend on the different Impressions which the luminous *Rays* make on the *Choroides*; these Impressions, at the same Time, shake the *Nervous Filaments* of

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the little *Ganglion* composed from the *third* and *fifth* pair of *Nerves*, which, as they pass to the *Iris*, send off Branches to the *Choroides*; so that, according to the Force or Weakness of the Impression made by the Light of the *Choroides*, the *Nerves* of the *Iris* having a Communication with those of the *Choroides*, at the same Time, a like Motion is excited in the *Fibres* of the *Iris*, viz. in the *Radial*, which dilate the *Pupil*, or in the *Circular*, to contract the same. Hence it is manifest, as the *Retina* has no Communication with the *Iris*, by which these different Movements might be produced, it must yield this Perfection to the *Choroides*, of which the *Iris* is a Production.

IN short, the different Observations, I have made of the Movement of the *Iris*, have determined me to lay down *Rules* by which the Strength, the Weakness, or total Loss of the *Sight* may be known; for the *Eyes* are often subject to *Diseases* scarcely perceptible, for the *diseased Eye* looks as sound as the *good Eye*; in order to examine and distinguish one from the other, use the following Method: Let the *Patient*
shut

shut both his *Eyes*, then with your Thumb rub round the upper Part of one of the *Lids*, afterwards let that *Eye* be opened and exposed to the Light; then examine, whether the *Iris* be endued with its *elastic* Movement of dilating or contracting the *Pupil*, and to what Degree; if, for Instance, to a fourth Part, to one Half, or whether it has any Movement at all; let the *Eye* thus examined be shut, and let the other *Eye* be opened and examined in the same Manner. When the *Iris* has but a fourth Part of its *contractile* Motion, the *Eye* has but a fourth Part of its *Sight*; if the *Iris* has one Half of its Motion, then the *Eye* has one Half of its *Visive* Faculty; if the *Pupil* is altogether dilated, and the *Iris* is quite deprived of its *contractile* Movement, the *Sight* of that *Eye* is commonly lost. The contrary Case requires a contrary Rule, *viz.* if the *Pupil* is contracted, and, after you have examined the *Eye* in the precedent Manner, no Movement is perceived in the *Iris*, this Case is opposite to the former, in which the Dilatation of the *Pupil* was considered. The *Sight* is alike lost in the Contraction of the

Pupil, as in the Dilatation; and the Strength or Weakness of the *Sight* is determined, by the Movement of the *Iris*, in the last Case, with equal Certainty as in the prior. Observe, when I speak of the Contraction of the *Pupil*, I don't mean that it is entirely shut, but only in Part closed.

THESE different States of the *Iris* are occasioned by a Sort of *Palsy* in its *Muscles*; the excessive Dilatation proceeds from a *Palsy* of the *Circular Muscle*; the extraordinary Contraction is caused by a *Palsy* in the *Radial Muscle*. The general Course of these *Palsies* must be deduced from an Obstruction in the *Nerves* of the *Choroides*, which, by their Communication with the *Nerves* of these *Muscles*, produce their Motion. It happens, tho' seldom, that the *Pupil* is almost deprived of any Movement, either of Contraction or Dilatation, whilst the *Sight*, tho' weak, still remains. In this Case, 'tis to be observ'd there is a *Palsy* in the *Nervous Filaments* of the *Iris*, and that the Impression of the Object is conveyed to the *Optick Nerve*, by Means of its close Union with the *Choroides*. I have always
 remarked

re-*marked* the *Palsy* of the *Choroides* is attended with that of the *Iris*, and that the *Palsy* of the *Nervous Fibrils* of the *Iris* does not damage the *Choroides*, tho' it weakens the *Sight*; which seems to be occasioned from the too great Dilatation or Contraction of the *Pupil*, which, by admitting either too many or too few *Rays*, renders the *Sight* imperfect.

C H A P. IX.

Of the three Sorts of Sight.

VISION is commonly distinguished into *three* Sorts, *viz.* the *good Sight*, that of the *Myopes*, and that of the *Presbytæ*.

VISION is said to be *good*, when the Person can *see to read* at a Foot Distance; in this *Sight* the *Cristalline* is perfect, distant *Objects* are *distinctly seen*: This *Species* of *Vision* has *three* Degrees or *Focus's*; the *first*, is at half a Foot, the *second*, at a Foot Distance, and the *third*, a little farther.

THE *Sight* of the *Myopes* has a very short *Focus*; they *see distinctly*, when the *Object* is near, but *confusedly*, when it is at a greater Distance; and, when the *Object* is at any considerable Distance, they cannot *see* it at all. They require a little *Light* to *read*. This Defect of the *Sight* is attributed to the *Cristalline's* being *too convex*.

THE *Myopes* have three Degrees or *Focus's*; some cannot *read*, without holding the *Object* to their *Nose*; others hold it two or three Fingers breadth farther; there are a third Sort who hold the *Object* at half a Foot Distance, and even more.

THE *Myopes* must use *Concave Glasses*, in order to *see distinctly*.

THE *Presbytæ* have their *Focus* very long: They *see distinctly*, when the *Object* is at a Distance, and *confusedly*, when it is near them; this Defect is thought to proceed from the too great *Flatness* of the *Cristalline*. It has likewise three Degrees; the *first* is at a Foot and a half Distance, the *second* at two and a half, and the *third* still farther; they cannot *read* without *Spectacles*, when the *Object* is near them: *Old Men* are subject to this *Disease*, it is quite

quite opposite to that of the *Myopes*, who see well near, and confusedly, when the Object is afar-off.

OF these three Sorts of *Vision* there are two, which admit of a *Change*; the *Good* is sometimes *changed* to that of the *Myopes*, especially in Persons who read much, or apply themselves to very fine Work, and sometimes, in old People, it changes to that of the *Presbytæ*: The *Sight* of the *Myopes* never varies; that of the *Presbytæ* sometimes becomes good; these different *Variations* proceed from the different *Alterations* in the *Convexity* of the *Cristalline*. When the *Nutritious Juice*, necessary to maintain the *Convexity* of the *Cristalline*, is of a sufficient *Fluidity* to pass to the *Extremities* of the most delicate *Vessels* of that *Humour*, then the *Convexity* is exact; but, if this *Juice* be too thick, it cannot enter these *Vessels* in a sufficient *Quantity*, for which Reason the *Cristalline* will become flat, in Proportion to the different *Tenuity* of the said *Juice*.



OF THE
DISEASES
OF THE
EYES.

BOOK. I.

CHAP. I.

Of the Method of dressing the Eyes in General.



It happens but too often, that *Remedies*, imprudently applied to the *Eyes*, are attended with *dangerous Accidents*, and sometimes with the *total Loss* of the *Sight*. The *Sick* never fail of some officious Persons who advise them to make Use of an infinite Number

ber of *Remedies*, tho' they are altogether ignorant of their *Efficacy*; the *sick* Person, thro' a *Desire* of being *cured*, applies them, without knowing, whether they are *suitable* to his *Disease*.

IN order to prevent these *Mistakes*, and the *fatal Consequences* of these pernicious Counsels, I shall shew the *Evil* that flows from them; but, *first*, I shall teach the general Method of *dressing the Eyes*.

'TIS customary, in most *Diseases* of the *Eyes*, to *bind* them: This is often *very detrimental* to them, for, when they have been thus *covered*, the *Sight* becomes afterwards more uneasy at the *Light*, and the *Disease* lasts much longer than it would have done, had there been no *Bandage*. For which Reason when the *Patient* can keep his *Eyes uncovered*, without being much incommoded by the *Light*, he receives more Benefit, for the *Air* which touches them, being *temperate*, *cools* them continually. But, if they are kept *bound up*, a *Film* or *Dirt* gathers between the *Globe* and the *Eye-lids*, which constantly frets the *Eye*, and augments the *Disease*.

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SOME People, in an *Abscess* of the *Eye*, in order to *clean* it, make Use of *false Tents*, which are little *Rollers* of *Linnen* with the *End* fringed to *wipe* the *Globe* of the *Eye*. This *Practice* is very *pernicious*, for the *Irritation*, made by the *Linnen*, is capable alone to increase the *Fluxion* of that *Eye*, and often *changes* the *Disease*; no *Tent* or *Lint* must be used to *wipe* the *Eye*; but let a *proper* *Water* be made *Blood-warm*, then dip a *Rag* or *Sponge* in it, squeeze the same, and let a *few Drops* of it fall into the *Eye*, the *Eye-lids* may be *lightly washed* with this *Water*. The bare *Friction* of the *Eye-lid* *wipes* the *Eye*, and forces out any *extraneous* *Body* which may lie on the *Surface* of the *Globe*: If the *Eye* be *gummed*, as it happens in the *Small Pox*, take the *feathered End* of a *Quill*, dip it in a *proper Collyrium*, and pass it gently between the *Eye-lashes* and the *Cartilage* of the *Eye-lids*, taking care not to *press too much* the *Globe* of the *Eye*.

IF it be requisite to lay to the *Eyes* a *Compress*, or any other *Remedy* in Form of of a *Cataplasm*, great Care must be had not to make the *Bandage* too *strait*: To
avoid

avoid this *Inconveniency*, pass the *Bandage* over the *Eye-brows*, and let Part of the *Compress* lie on them; it is likewise to be observed, that *Dressing the Eyes* five or six Times a Day is sufficient, and sometimes *seldomer*, according to the *Disease*; for the too frequent *Dressing* irritates them.

I SHALL add one Remark more concerning *Remedies ill applied*, which are often more *injurious* to the *Eye* than the *Disease* itself: If a Person receives a *Stroke* on his *Eye*, and a *sharp pungent Remedy* is applied, by its *Irritation*, it will draw a more violent *Defluxion*, than the *original Stroke* would. For the *Stroke* determines a great *Quantity* of *Blood* and *Humours* into the fine minute *Vessels* of the *Eye*: Wherefore if, instead of *emptying* these *Vessels*, whether by *Bleeding*, or by *dispersing* the *Blood* by mild *Remedies*, *irritative Medicines* be made Use of, they will increase the *Flux* of *Humours*, and the *Disease* will become more violent. What I have said, as to *Strokes*, is applicable to all *Inflammations*, which, for the most Part, depend on a *vitiated Lymph* that is grown too *sharp*; for which Reason *acrid*
pungent

pungent Remedies, such as Copperas, Water, &c. instead of correcting this Lymph, will augment the Disease: There is lately sold, in Paris, a Water or Secret, as an infallible Remedy for all Diseases of the Eyes, and as a peculiar Medicine of the Elector of Bavaria; I have observed this Water, in the Beginning of Defluxions, is very prejudicial to the Eyes; at which I am not surprized, since the Composition of this Water has been communicated to me, it is made as follows: A certain Quantity of white Copperas is dissolved in half a Pint of Rain Water gathered in the Month of March, and, thus prepared, it is applied to the Eyes. I mention this, in order to prevent the Use of such Waters, in Cases where they may be very injurious: For, as they are very pungent, they often draw a Flux of Humours to the Eye, which may change a simple Defluxion to an Abscess, and so cause the Loss of the Sight. I have, however, observed, these strong Remedies have been serviceable in inveterate Defluxions, and have cured a Disease which they would have increased in its Beginning; so that there are Cases in which they may

be

be used, and are *Exceptions* from the *General Rule*. All other *Diseases* of the *Eyes*, in general, may be referred to these *two Cases*; hence it is manifest, that it is not sufficient to have such a *Medicine*, and such a *Water* appropriated to such a *Disease*; the *Time*, and the *Degree* of the *Disease*, in which they should be used, must likewise be *known*.

THE *Diseases* of the *Eyes*, for the most Part, depend on a *vitiating Blood*, which must be *corrected* in the *very Source*; this is out of the Power of *external Remedies*. There are likewise some *particular Cases*, in which the *Eyes* cannot bear, without *very great Danger*, the Application of *Remedies*, that are in the least *active* or *violent*; hence *numberless Accidents* arise through the *Ignorance* of those who *advise* or *give* them, they being *unexperienced* and *unacquainted* with their *Virtues*, and the *State* of the *Disease* in which these *Remedies* should be apply'd.

THERE are likewise some *Diseases*, which yield to *no Remedies*, and which are *curable* only by *proper Operations*.

The *precedent Discourse* evidently shews, that whosoever intends to *treat of the Diseases of the Eyes*, must not only know the *Remedies proper* to be apply'd, but he must likewise be well versed in the *Means of correcting the various Defects of the Blood and Lymph*: For which Reason the *Advice of a skilful Physician* is necessary, in order to *remove and rectify the different Discrasy of the Blood by proper Medicines*; he must likewise have a *steady good Hand*, and a *complete Knowledge* of all that is requisite for performing the *Operations*, when needful.

WHEN the *Membranes of the Eye* seem disposed to *suppurate*, some Persons apply *Anodyne Cataplasms of Crum of Bread, Milk, &c.* but such *Remedies* hasten the *Suppuration*, and the *Dissolution of the Globe*. On the contrary, *resolvent Medicines* should be apply'd, which may *prevent and lessen the Suppuration*. By this Means, after the *Cure of the Abscess*, a *small Share of the Sight* is *preserved*; otherwise it will be *totally lost*,
if

if the *Suppuration* of the *Eye* be too *redundant*.

THE Application of *Plaisters* to the *Eye* is a very *pernicious Practice*; for, if the *Head* abounds with too much *Humidity*, these *Plaisters* will infallibly draw it to the *Eyes*; hence follow *Abscesses* and the *Decay* of *Sight*.

ONE Reason contributes very much to *prolong* the *Cure* of the *Diseases* of the *Eyes*; for, *Remedies* put into the *Eyes*, do not remain long enough in the *Eyes*; they are forced out with the *Tears*, and by the continual Motion of the *Eye-lids*. Nothing *actually cold* must be apply'd to the *Eyes*, for tho' *cold Things* seem, at first, to give *Ease* in *Inflammations*, yet they are very *hurtful*; they *retard* the Motion of the *Blood* in the *exterior Vessels*, and *hinder* the *Perspiration*, by which the *Disease* *increases*. This *Caution* must not be understood of *Spirituos Remedies*, which ought not to be *heated*, lest their *Force* and *Efficacy* should be *lessened*. Nothing is more *prejudicial* than *oily Medicines*, which, by *stopping* the *Pores*, *continue* the *Obstructions*.

IN General, as to the *Use* of *Medicines*, let their principal Intention be always to *destroy* the *productive Cause* of the *Disease*; wherefore, as the *Diseases* of the *Eyes* proceed either from a *Plethora*, or from some *inherent vitious Quality* of the *Blood*, the *Redundancy* must be *diminished* by *Bleeding*; and the *various Defects* of the *Blood* must be *rectified* by *proper Remedies*, whether *Catharticks*, *Emeticks*, *Sudorificks*, *Alteratives*, *Sweeteners*, *Coolers*, &c.

As I *treat* of each *Disease* in particular, I shall propound the *Remedies* appropriated for their *Cure*. I shall make Choice of these which *injure* the *Eyes* least, and *ease* them *soonest*: When the *Diseases* do not yield to those *Remedies*, there are other *Specifick Medicines*, which must be applied only in *particular Cases*, and which cannot be proposed as *general Remedies*. I have *made Use*, with *Success*, of these inserted in this *Treatise*, in the *Cure* of each *Disease*.

C H A P. II.

Of the Anchylops, or Abscess of the great Angle.

THE *Anchylops* is a *Tumour* situate at the *great Angle* of the *Eye*, for the most part, under the *Conjunction* of the *Eyelids*; it degenerates into an *Abscess*, and is *twofold*, the *one* attended with *Pain*, the *other* almost without any *Pain*.

THE *Anchylops* with *Pain* is often accompanied with a *violent Fever*, which continues till the *Matter* is *formed* and *discharged*.

THE *Anchylops* with little *Pain* is, for the most part, free from a *Fever*; the *Swelling* of the *great Angle* is *light*, and the *Colour* of the *Skin* but little *changed*.

THIS *Tumour* is *produced* by *various Causes*: 1. By the *Lymph* which passes from the *Eye*, through the *Lacrimonal Points*, into the *Nose*. For, if this *Humour*, which ought to enter these *small Channels*, be *vitiated*, or the *Parts*, thro' which it should pass, be *obstructed*, it

will certainly *cause*, by its *Stagnation*, an *Abscess* in the great *Angle*. This *Lymph* may be *vitiated* in a *twofold* Manner: 1. When, through its *Acrimony*, it *corrodes* the *inward Parts* of the *Lacrimal Bag*, and so *causes* an *Oozing* of *purulent Matter*, which enters the *Lacrimal Duct*, and stops it. The *Lacrimal Lymph*, being thus *intercepted* in its *Passage*, *fills* the *Bag*, *swells* it, and *raises* the *upper Part* of it, as appears from an *Eminence* or *Rising* under the *Union* of the *Eyelids*: If this *Eminence* be *press'd*, the *Matter* *regorges* through the *Lacrimal Points*.

2. WHEN the *Lacrimal Lymph* grows too *thick* or *viscid*, as it cannot pass through the *Nasal Duct*, it *stagnates* in the *Lacrimal Bag*, and there *produces* a *Rising* like to the before-mentioned *Eminence*, with this *Difference*, that, when the *Tumour* is *press'd*, the *Humour* *flows* through the *Nose*; this does not happen, when the *Tumour* is *produced* by the *first Cause*. Sometimes there is no *Defect* in the *Lymph*: But the *Membranes*, which form the *Lacrimal Duct*, are *inflamed*, as this *Duct* is *obstructed* through the *Distension* of its *spongy Tissue*;

sue; the *Serosity* must *stagnate* in the *Lacrimonal Bag*, and by *stagnating* becomes *acrid*, and *excoriates* the *Inside* of the *Bag*; from hence the forementioned *Accidents* arrive.

THIS *Repletion* of the *Lacrimonal Bag*, from the *Stagnation* of its *Lymph*, is called by some a *Dropsy*, whether, when the *Bag* is squeezed by the *Finger*, the *Lymph* passes through the *Nose*, or flows towards the *Eye*. But this *new Name* for this *Disease* is altogether *improper*; for all *Dropsies* suppose an *Accumulation* of a *watery Humour* in some *Cavity*, out of which it has no *Egress*. But, in the *present Case*, the *Matter*, contained in the *Lacrimonal Bag*, may be squeezed out; nay, the very *Lymph* passes through most *People's Noses*, when they are *asleep*; so that, in the *Morning*, the *Bag* is *empty*, tho', *three Hours* after the *Patient* has got up, the *Bag* fills again, which obliges him to *empty* it. This *Observation* seems to shew, that, whilst the *Patient* is in an *erect Posture*, the *Lacrimonal Bag* forms a Sort of *Fold*, or *Plait*, which stops its *inferior Passage*.

56 Of the DISEASES

WHEN the *Lacrimal Bag* is filled in the above-mentioned Manner, and the contained *Humour* is too thick to pass off, either thro' the *Lacrimal Points*, or thro' the *Nasal Duct*, it causes an *Inflammation*, which turns to an *Abscess*, and forms the present *Disease*. The precedent Discourse sufficiently delineates the Signs of an *Anchylops*, when it is formed; but it is hard to know it, in the *Beginning*, notwithstanding, when the *Tears* cease to flow thro' their usual Passages, or when they flow with more Difficulty, a *filmy Humour* may be perceived at the great Angle, attended with a light *Inflammation*, with *Pain*, *Itching*, and a *Flux* of *Tears*; these Symptoms accompany most *Defluxions*.

WHEN the great Angle of the Eye is press'd, if a whitish *Humour* flows thro' the *Lacrimal Points*, or the Eminence in the *Lacrimal Bag* appears, there is Reason to fear the *Humour*, contained in that *Cystis*, will become *acid*, and an *Abscess* ensue.

ABSCESSES of the great Angle, for the most part, degenerate into a *Fistula Lacrimalis*, and sometimes into a *Cancer*,
when

when their *productive Humour* is *malignant*.

CARE must be had to examine strictly, whether the *Abscess* opens into the *Lacrimonial Bag*, or whether it be only *superficial* between the *Skin* and the *Orbicular Muscle*. In the latter *Case*, there is no Fear of its changing to a *Fistula*, if the *Matter* is not lodged between the *Bag* and the *Muscle*. When, by the precedent *Signs*, we perceive the *Lymph* is *obstructed* in the *Lacrimonial Bag*, we must immediately apply *Remedies* to prevent the *Increase* of the *Distemper* ; for which Reason the *Patient* must be let *Blood*. Let him take every *Morning* a *Broth* made of *Veal*, *Chervil*, *Bugloss*, *Borrage*, *Succory*, and *Crabs* ; he must likewise be *purged* from *Time* to *Time*. He must use the *House-Baths*, and other *Remedies*, proper to rectify the bad *Crisis* of the *Lymph*. In this *Case*, *Injections* thro' the *Lacrimonial Points* are chiefly useful ; but you must take Care, if the *Bag* be considerably *dilated*, to press it a little with your *Finger*, whilst you *syringe* ; otherwise the *Injection*, instead of doing any
Good,

Good, will be very *pernicious*; for, without this *Precaution*, the *injected Liquor* will cause a greater *Dilatation* of the *Bag*: After you have used the *Syringe* *five* or *six Days*, if the *Injection* thro' the *Lacrimonal Points* does not pass into the *Throat*, or flow thro' the *Nose*, it is of *no Service*; which confirms my *Opinion*, that it is *proper* only in *simple Obstructions* of the *Lacrimonal Bag*, but not in a *Fistula Lacrimonalis*.

A *BANDAGE*, that shall *compress* the *Lacrimonal Bag* in its *Elevation*, will be more *efficacious* than the *Syringe*, for it continually forces the *Humour* towards its lower *Orifice*; let the *Outside* of the *Eminence* be rubbed *three Times a Day* with *Hungary Water*.

LET the *Inside* of the *Eye* be washed with *hot Wine*, in which you may mix some *Drops* of the *Balsam* of the *Commander of Bernes*. Every *Night* let a *Compress*, dipp'd in this *Wine*, be laid to the *great Angle*. Some *People* are *cured* by this *Method*, when the *Obstruction* of the *Lacrimonal Bag* is *small*, and the *Os Unguis* is not affected.

THE *Abbot de Grace* has sometimes cured, with his *Plaister*, *Fistula's* and *Abscesses* of the great *Angle*; he laid on a *Plaister*, that covered the whole *Eye*, for the Space of a *Month*, still wiping the *Eye* *Night* and *Morning*, and applying every *Day* a fresh *Plaister*. In any of the *precedent Cases*, when an *Inflammation* of the *Lacrimonal Bag* supervenes, tho' it should be caused by a *Flux* of *Humours* on that Part, the *Patient* must be let *Blood*, and you must apply *Remedies* that will prevent the *Increase* of the said *Afflux*. The *Pulp* of a roasted *Apple*, mixed with the *White* of an *Egg*; or *Pulp* of *Cassia* and of a roasted *Apple*, of each an equal *Quantity*, mixed together, are very good. If the *Os Unguis* be not infected, to cure the *Ulcer*, make use of the *Plaister* of the *Abbot de Grace*; at the same Time you must take Care to purge the *Patient*, as the *Disease* shall require. When you perceive the *Matter* in the *Lacrimonal Bag* is changed to *Pus*, you must not wait the *spontaneous Discharge* of it, for, by a long *Continuance*, it may generate a *Caries* in the *circumjacent Bones*; for which Reason you must open
it

it with a *Lancet*, still observing the *Direction* of the *Fibres* of the *Orbicular Muscle*; dress the *Wound* with the *Plaister* of the *Abbot de Grace*.

C H A P. III.

Of the Ægylops, or Fistula Lacrimalis.

TH O' the Word, *Fistula*, in general is understood to signify an *Ulcer* of various *Depth*, narrow at its *Entrance*, and large at its *Bottom*, with a *Callosity* in its whole *Extent*:

EXPERIENCE, however, shews the *Ulcer* of the great *Angle*, called *Fistula Lacrimalis*, tho' it be ever so *inveterate*, is seldom attended with a *Callosity*; besides, the *Callus* reaches only to that *Part* of the *Skin* of the *Orbicular Muscle*, which covers the *Lacrimonal Bag*.

A *FISTULA Lacrimalis* may then be described an *Ulceration* of the *Lacrimonal Bag*, accompanied sometimes with that of the *Skin* which covers it, or a *Rottenness* of the

the Bones which inclose it, and often neither the Skin, nor the neighbouring Bones, are tainted.

WE may therefore establish Two Sorts of *Fistula's*; the *First* with an *Ulceration* of the *Skin*, and is called the *Open Fistula*; the *Second*, in which the *Skin* is not *ulcerated*, and is called the *Blind* or *Occult Fistula*. In this latter, there appears sometimes an *Eminence*, at the Place of the *Lacrimonial Bag*, and sometimes there is none; for which Reason this *last* Sort has been called the *Flat Fistula*.

WHEN the *Humour*, which *stagnates* in the *Lacrimonial Bag*, is not *acrimonious*, the *Os Unguis* is not *corrupted*; but, if it be an *inveterate Fistula*, the *Matter* of the *Bag*, by its *Acrimony*, *corrodes* the *inward Parts* of the *Bag*, renders the *Os Unguis* and *Maxillare carious*, and penetrates to the *Bottom* of the *Orbit*, which it *infects* likewise. I call this *last* Sort the *Complicated Fistula*.

THERE *supervenes*, from Time to Time, in this *Disease*, an *Inflammation* of the *great Angle*, which sometimes extends itself over the whole *Eye*: This *Inflammation*

mation is caused by the *Humour* of the *Fistula*, which becomes more *sharp* and *malignant*, and, as it *regorges* through the *Lacrimal Points*, *irritates* the *Eye*.

THESE *Fistula's*, at one Time, afford more *Matter* than at another Time ; sometimes they discharge a great deal, and often very little. These *Variations* depend very much on the *Blood's* being more or less *vitiated*.

ALL the forementioned *Causes* of an *Anchylops* may produce a *Fistula* ; for it is manifest, that several of these *Fistula's* are *subsequent* to them. Some are caused by the *Venereal Disease*, by the *Scurvy*, and the *King's Evil* ; some, in short, are the *Effects* of the *Small Pox*.

THE *blind Fistula Lacrimalis* is thus distinguished ; for if that Part of the *great Angle*, which corresponds with the *Lacrima Bag*, be squeezed, and a *purulent Matter* passes through the *Lacrima Points*, the *Quality* of the *discharged Matter* shews, whether there be a *Caries* ; for if the *Pus* be *greenish*, or *blackish*, it is a *Sign* the *Bones* are *rotten* ; and if the *Pus*, though in itself laudable, is in great *Plenty*,
if

if the *Bones* are not then *carious*, they will become so in a short Time.

WE may easily form a Judgment of the *Open Fistula* by the Help of the *Probe*, and by the *Quality* of the *Matter* which runs from it. As to the *Prognostick* of this *Disease*: When the Persons, afflicted with the *Fistula Lacrimalis*, are subject to frequent *Defluxions*, it is difficult to cure; not only on Account of the *Acrimony* of the *Humour*, but also on Account of the great Number of *Sinuosities* which, for the most Part, attend the *Fistula*. But, if the *Patients* are free from *Pain*, and not liable to frequent *Relapses* of *Fluxions*, and the *Matter*, which runs out of the *Fistula*, is in small Quantity and well qualified, the *Cure* is so much the easier. All *Fistula's*, caused by a *Scrophulous*, *Venereal*, or any other *Original Infection*, cannot be cured, till the *primitive Source* of the *Evil* is destroyed.

IN order to cure the *Occult Fistula Lacrimalis*, *Injections* through the *Lacrimal Points* may be used, for some *Days*; if they prove ineffectual, the *Bag* must be opened, and the *Injection* must be made through

through the *Aperture*; afterwards apply the *Plaister* of the *Abbot de Grace*, which continue, till it be cured, provided the *adjacent Bones* are not *carious*, for then you must come to the *Operation*, which shall be described in the *Sequel*.

BOTH *antient* and *modern Practitioners* have judged the *Cure* of a *Fistula Lacrimalis* to depend on the *Exfoliation* of the *Os Unguis*, which is become *carious*. The *first* always opened the *Fistula* below the *Tendon* of the *Orbicular Muscle*, in order to prevent the *Distorsion* of the *lower Eyelid*, which, in their *Opinion*, was occasioned, because that *Tendon* was destroyed. Some of the *Moderns* adhere to the *Antients*; others, persuaded the *Cutting* of that *Tendon* does not contribute to this *Distorsion*, make no *Difficulty* to cut it, when the *Extent* of the *Caries* requires it.

BOTH *Antients* and *Moderns*, as soon as they lay the *Os Unguis* bare, endeavour to consume the *Caries* by the *Actual Cautery*, applied *two or three Times* through a *Canula*. They are satisfied with their *Operation*, when the *Patient* tells them he *smells something burnt*, or when *Blood* or *Serosity* flows

flows through the *Nostril*; then they dress the *Wound* with *Tents* of a sufficient Length; to keep open the Communication that is made between the *Nose* and the *Fistula*; but their little Care to continue the Length and Thickness of those *Tents*, till the Coats of this new Passage cicatrise, often renders their Operation fruitless; for the Tears, incessantly flowing into the *Lacrimonal Points*, and finding no Passage through the *Nose*, in a short Time produce a new Evil, almost as great as the former.

THIS Operation is attended with several Inconveniencies; 1st, If the Incision be made above the Tendon of the Orbicular Muscle, the angular Artery may be cut, and especially in the Operation of the Flat Fistula. The Patient then runs the Hazard of losing his Sight, if the Surgeon does not take Care not to press the Globe of the Eye, when he applies the Apparatus, which he is obliged to lay to the great Angle; to stop the Bleeding occasioned by the Aperture of the Artery.

THE second Inconveniency is the Distortion of the lower Eyelid. This happens, because the Skin, that unites the Eye-lids,

has been destroyed, whether it be caused by the *Matter* which runs from the *Ulcer*, or by the *Fire* of the *Caustick*, that is applied to consume the *Caries*.

THE *third Inconveniency* is the *Flux* of *Tears*, which always follows the *Operation*, when due *Care* has not been had to keep open the Communication between the *Eye* and the *Nose*. In short, it is easy to conceive, as the *Glandula Lacrimalis* constantly furnishes its *Lymph*, if the *Lacrimat Points* cannot discharge the said *Lymph*, by Reason of the *Cicatrice* at the End of their *Duct*, this *Serosity* must necessarily fall on the *Cheeks*.

BEFORE the *Patient* undergoes the *Operation* of the *Fistula Lacrimalis*, he should be duly prepared, and that always in Proportion to the *Malignancy* of the *Fistula*; for if the *Matter*, which comes from it, be in a *small Quantity* and of a *laudable Consistence*, and there be no *frequent Relapses* of *Defluxions*, then a *Bleeding* and a *Purge* will be a sufficient *Preparative*: But, on the contrary, if the *Humour*, which runs from it, excites by its *Acrimony* *frequent Fluxions* on the *Eyes*, he will require an
amplifier

amplifier Preparation, and all these *Accidents* must be *corrected*, before you undertake the *Operation*: In this *Case*, besides *Bleeding* and *Purging*, the *Patient* must confine himself to an *exact Regimen*; he must abstain from *Wine*; let him *drink* every *Morning* a *Pint* of *Whey*, mixed with an *Ounce* of *Syrup of Violets*, to be continued for a *Fortnight* or *three Weeks*. It is sometimes necessary to *bathe* the *Patient*, and to *repeat* the *Purging* and *Bleeding*, till all the *Redness* of the *Eye* goes off; for, if the *Operation* should be attempted, whilst the *Blood* is *sharp* and *vitiating*, it may occasion a *Flux* of *Humours* on the *Eye*, and bring on other *Accidents*, which may be *more dangerous* than the *Fistula*. After the *Patient* has been thus prepared, you may perform the *Operation*. If the *Fistula* be *open*, and the *Opening* be not sufficiently large, you may *dilate* it with *prepared Sponge*, the *Bistoury*, or *Lancet*, as you shall judge most proper.

If the *Fistula* be *occult*, make your *Incision* below the *Tendon* of the *Orbicular Muscle*, unless the *Bag*, which contains the *Matter*, forms an *Eminence*, that ex-

tends above the *Tendon*; then you must begin your *Incision* in that Place, and continue it downwards the Space of *three Lines* below that *Tendon*, in the Shape of a *Half-moon*, so that the *convex Part* of it be towards the *Nose*, and the *Concave* towards the *Eye*, whilst the *Middle* of it answers the *Tendon* of the *Orbicular Muscle*. You must take great Care to keep as great a Distance as possible from the *Conjunction* of the *Eye-lids*. If the *Matter* seems to lodge only below the *Tendon*, it will suffice to make an *Incision* with your *Lancet*, beginning exactly above the *Edge* of the *Orbit*, thrusting your *Lancet* into the *Bag*, and dilating the *Wound* from the *lower* to the *upper Part*, which you must continue within a *Line's* Distance of the *Tendon*; then lay in a Piece of *prepared Spunge*, till the *next Day*, to make the *Orifice round*; then search, with your *Probe*, for the *Bottom* of the *rotten Os Unguis*: When you have found it, keep your *Probe* still in the Place, in order to guide your *Canula*, which you must slide down your *Probe*, till it comes to the *Bone*.

HAVING

HAVING fixed the *Canula*, draw out your *Probe*, and, with the greatest Expedition, pass the *Caustick Button* thro' the *Cavity* of the *Canula*, till it presses on the Part which you would *cauterise*. As soon as the *Bone* is pierced, draw out the *Caustick* and *Canula*, at the same Time. If *Blood* flows thro' the *Nose*, it is a *Sign* the *Operation* is well performed. The same is also denoted, if the *Air* comes out of the *Wound*, when the *Patient* squeezes his *Nose*, and, at the same Time, attempts to blow it.

THEN put in a *Tent*, which may be long enough to pass beyond the *Opening* made in the *Membrane*, which covers the *interior* or *lower Part* of the *Os Unguis*, covering the same with a *Plaster*, and laying over the *Eye* a *Compress*, wetted in some *cooling Collyrium*. If the *Incision* must be made *above the Tendon* of the *Orbicular Muscle*, as the *upper Part* of the *Os Maxillare* is most commonly *carious*, before you pierce the *Os Unguis*, let the *Cautery* be applied *two or three Times* to the *rotten Part* of the *Os Maxillare*; afterwards *cauterise* the forefaid *Part* of the

Os Unguis. Let the *Patient* be dressed, in the same Manner as in the *precedent Case*. Take off the *Plaister* next Day, wipe the *Wound*, and lay on a *fresh one*; draw out the *Tent* the *third Day*, and take the *Barrel* of a *Quill* open at both *Ends*, and introduce it thro' the *Wound*, till it comes to the *Bone* which was *cauterised*. Then get another *Tent*, and, having wetted one *End* of it in the *liquid Caustick*, thrust it into the *Hollow* of the *Quill*, till the *End* of the *Tent*, which had been wetted in the *liquid Caustick*, passes into the *Hole* of the *Os Unguis*, and thro' that *Hole* upon the *Palate*. Then draw out the *Quill*, which guarded the *Eye* and the *Lacrimonal Bag* from the Violence of the *Caustick*, and then lay on the *Plaister* again. The next Day put in a larger *Tent*; the *Size* of the *Tent* must be daily increased, till a *Tent*, somewhat less than the *Barrel* of a large *Quill*, can be got into the *Orifice*. Still continue to draw the *Wound* with *Tents*, till you are satisfied that the *Bones* are *exfoliated*, and that a *Membrane* is likewise formed upon all the *inner Circumference* of the new *Channel*; then draw out the *Tent*, and let
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the *outward Orifice* heal. By this Method, the *Eye* is so well preserved, that in several, who have had a *Fistula Lacrimalis*, it can hardly be perceived.

LET the *Opening*, which is made in the *Skin* and *Orbicular Muscle* to enter the *Lacrimal Bag*, be as *small* as possible, for if it be either *too large*, or *too long*, it leaves a disagreeable *Cicatrice*. Besides, a *long Incision* can never contribute to make the *Passage* easier to the *internal Part* of the *Bag* which touches the *Os Unguis*, for the *Edge* of the *Orbit* hinders it. I say farther, that whatever is *cut*, to *lengthen* the *Incision*, will *close* in a short Time, and no *Aperture*, but that which the *Thickness* of the *Tent* makes, will remain. But, if the *Incision* must be made *above the Tendon*, it is then requisite to make it *longer*, on Account of the *two Places* to which the *Caustick* must be applied.

As to *complicated Fistula's*, I mean these in which the *Caries* penetrates to the *very Bottom* of the *Orbit*, their *Cure* is thus performed: The *foul Part* of the *Cone* must be *exfoliated*. Wherefore take the *Barrel* of a *Quill* about the *Thickness* of a

Tent, let its *lower End* be *closed*, make a *Slit* in the *Quill* about the *Breadth* of a *Line*. Put into the *Hollow* of the said *Quill* a Piece of *prepared Sponge* wetted in some *liquid Caustick*, and, instead of a *Tent*, introduce the *Quill*. As the *Moisture* will *swell* the *Sponge*, it will bear thro' the *Slit* of the *Quill* on the *Bone* that is *carious*; if it does not fully answer your *Intention*, at the *first Time*, let it be *repeated* to make a *Passage*, from the *Place* where the *Bone* is *carious*, to the *Channel* which had been made in the *Os Unguis*. By this *Method*, you will avoid the *Danger* of applying the *actual Caustery*; which could not be done, without *touching* the *Globe* of the *Eye*, by which the *Sight* must *perish*.

As the *Operation* of the *Fistula Lacrimalis* is designed to destroy the *Caries*, and to substitute a *new Channel* instead of the *natural one* which is obstructed, it does not suffice to make this *Channel* by the *Operation*; but this *factitious Passage* must be so ordered, as to subsist after the *outward Orifice* is healed; so that you must take great *Care*, before you remove the *Tents*, which entertained the *Opening*, that
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the *new Channel* be lined in its *whole Length* with a Sort of *Skin* or *Membrane*, as we have already noticed. Altho' I have endeavoured to describe, in the clearest Manner possible, the Method of performing this *Operation* with *Success*, it will notwithstanding be difficult to any, but to those who *perfectly know* the *Structure* of these *Parts*, for the *Sight* affords no Help in this *Operation*: The *Probe*, a *sound Judgment*, and a *perfect Knowledge* of the *Parts* are our only *Guides*; moreover, the *Bones*, in different *Subjects*, have not the same *Shape* or *Situation*, there is always found some *Variation* more or less.

C H A P. IV.

Of the Fistula's of the Eye-lids.

BESIDES the *Fistula Lacrimalis* there are likewise *Fistula's*, which attack the different *Parts* of the *Eye-lids*; some are generated, after an *Abscess*, under the *Globe* of the *Eye*. Besides, when a *scrophulous Tumour* seizes the *lower Part* of the *Orbit* on the *Side* of the *little Angle*, if this
Tumour

Tumour turns to an Abscess, the Matter, which it contains, creates a Caries in the Bone near it, and, after this Matter is emptied, a Fistula follows, if due Care be not had to exfoliate the carious Bone.

FISTULAS of the Eye-lids are subsequent to Abscesses formed between the Orbicular Muscle and the Skin. These Abscesses are either small or great. The small ones proceed from a Critbe or Barley-corn Tubercle, which apostemates between the Cartilage and the Skin that covers it. The Matter of the Abscess pierces the Edge of the Eye-lids, and makes its Way between the Roots of the Eye-lashes, which are besmeared with a Pus that ouzes from it continually, and sticks to them. As the Aperture of this Abscess is small, the Matter remains in a little Cystis, which can scarce hold a Lentil, and sometimes less; there is a constant Swelling in this Part of the Eye-lid, which becomes fistulous from the Matter of this little Abscess: To cure this Sort of Fistula's, dip the End of a Quill, in the Form of a Pick-tooth, into a liquid Caustick, and introduce it to the Bottom of the Fistula; it will make an Eschar that shall

shall dilate the *Orifice*, and waste the *Callosity*; when the *Eschar* falls off, the *Flesh* soon renews, and the *Cure* shortly follows.

THE greater *Fistula's* are produced in the *Eye-lids* by an *Abscess*, which extends from the great *Angle* to the *Middle* of the *Eye-lid*: When the *Matter* is gathered, it makes its Way through the *Lacrima!Points*, and the constant *Discharge* of the *Pus* lessens the *Size* of the *Eye-lids*; but as there remains a *Bag*, which incessantly supplies fresh *Pus*, the *Orifice* becomes *fistulous*, and causes an obstinate *Ophthalmia* in the *Globe* of the *Eye*. A *Case* of this Nature happen'd to a *Lady of Distinction*, on whom I performed the following *Operation* in the Presence of *Messieurs le Dran* and *Arnault*, two *Eminent Surgeons* of *Paris*. This *Lady* had an *Erysipelas* on her upper *Eye-lid*, attended with a *Swelling* of the *Lid*, and with a *Redness* of the *Caruncula Lacrimalis*, and of the *Conjunctiva*. The *Erysipelas* suppurated, and turned to an *Abscess* which spread from the *Middle* of the *Eye-lid* even to the *Nose*, above the *Conjunction* of the two *Cartilages*. The *Mat-*
ter

ter penetrated thro' the *upper Lacrimal Point*, so that one *Part* of the *Matter* ran out thro' this *Hole*, whilst the other *Part* past downwards to the *common Channel*; thence it re-ascended thro' the *Duct* that corresponds with the *lower Lacrimal Point*, and there flowed out thro' its *Orifice*. At first, I had some *Difficulty* to find the *Cause* of this *Matter*, but, some *Time* after, *syringing* thro' the *upper Lacrimal Point*, and directing the *Barrel* of my *Syringe* towards the *Place*, where the *Eminence* had been, I perceived the whole *Cavity* was full of the *Water*; whence I concluded there was a *Fistula*, and determined to open it *above* the *Eye-lid* as near the *Cartilage* as possible; afterwards I *syringed* thro' the *Aperture* I had made, and I found the *Water* entered the *upper Lacrimal Duct*, and past thro' the *Nose*; I laid in a *Tent* of *prepared Sponge* to keep it open, and to discover the whole *Cystis*. A *Fragment* of the *Sponge* was lost, and came out *some Days* after thro' the *lower Lacrimal Point*.

I SEARCHED the *whole Length* of the *Cystis* with my *Probe*, and cut from my *Aperture* to the *End* of the *Cystis*, which
 was

was towards the *Middle* of the *Eye-lid*. I performed the same on the *Side* of the *Nose*, so that the *Cystis* was laid open in its *whole Length*. I cut with a pair of *fine Scissars* all the *Skin* which covered the *Cystis*, beginning from the *Top*, and continuing to just above the *great Angle*: This *second Incision*, as it approached the *Nose*, was different about a *Line* from the *first*. Afterwards, with my *Pincers*, I raised that *Part* of the *Skin*, and, with the *Point* of my *Scissars*, I cut it towards the *Nose*, to prevent the *Extremities* of the *two Lips* from sticking together, till the *Bottom* of the *Fistula* was healed. *Next Day*, I applied the *Lapis Infernalis* to the *Bottom* of the *Fistula*, it consumed the *Callosity*. The *Wound* was dressed with the *green Balsam* of *Madame de Feuillet*, and with the *Plaisters* of the *Abbot de Grace*; a few *Days* after, all the *Symptoms* ceased, and the *Fistula* was perfectly healed.

As to *Fistula's* which mine under the *Globe* of the *Eye*: About *fifteen Years* ago, I attended a *young Man*, who came from *Versailles* to *Paris*; he had been afflicted with an *Abscess* under the *Ball* of his *Eye*,
the

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the *Matter* of this *Abscess* had mined thro' an *Opening* in the *Middle* of the *lower Eye-lid*; I pass'd my *Probe* thro' this *Aperture*, and found that the *Pus*, by stagnating under the *Globe* of the *Eye*, had produced a *Caries* in the *Bone* which makes the *inferior Part* of the *Orbit*. The *Pus* flowed into the *Sinus* of the *Os Maxillare*, and ran out thro' the *Nose*. As this *Course* of the *Pus* was somewhat hard to come at, and to prevent its *stagnating* in the *Bottom* of the *Sinus*, by which the *Sinus* might become *carious*, I had one of his *Dentes Molares* or *Grinders* drawn, the *Root* of which reaches sometimes to this *Sinus*. Afterwards I *syringed*, *Morning* and *Evening*, a *Decoction* of *Birth-wort*, *Gentian*, and *Myrrh*. The *Injection* dropp'd from the *Sinus*, thro' the *Hole* of the *Tooth*, into his *Mouth*. By the *Help* of these *Remedies*, the *Patient* was *cured* of his *Fistula*, at the *End* of *two Months*.

I HAVE seen *two Fistula's* which proceeded from *cold Humours*; the *first* in a *Child*, and was subsequent to a *scrophulous Tumour*, seated in the *exterior Part* of the *Os Mali*, that forms the *inferior Part*
of

of the *Orbit* on the *Side* of the *little Angle*. This *Tumour* changed to an *Abscess*, the *Matter* made Way thro' a very small *Aperture*, which could not be brought to *close*, tho' it had been attempted: His *Friends* sent him to me, and, as I found the *Bone carious*, I dilated the *Aperture* to apply with more Ease the *actual Cautery*, after which I made use of *Spirit of Wine Camphorated*. Some Time after, the *carious Part* of the *Bone exfoliated*, and the *Patient* was *cured*. The *second Fistula* was likewise the Result of a *Scrophulous Tumour*, its *Matter* had penetrated thro' the *Skin* and the *Orbicular Muscle*, the *Cone* was also *carious*. As the *Patient* was in the *Hands* of another *Surgeon*, and not entrusted to my *Care*, I relate only what I had *seen*.

CHAP. V.

Of the Crithe or Barley-corn Tumour, of the Periosis or Hail-stone, and of the Lithiasis, or Gravel-stone, of the Eye-lids.

THE *Crithe* or *Barley-corn* is a *Tumour* of various *Size*, it grows in different *Parts* of the *Eye-lids*; 'tis commonly called a *Stye*. When it is *small*, it comes only on the *Edge* of the *Eye-lids*, or very near it, between the *Cilia*; but, when it is *larger*, it spreads towards the *Middle* of the *Lid*. In their *Beginning*, an *Inflammation* commonly accompanies these *Tumours*: When they do not *suppurate*, their *Matter* is *concreted*, and they become *Wens*, the which are sometimes *soft*, and sometimes *very hard*. Tho' they are not very troublesome, especially when they are without *Pain*; yet there is no one, who would not wish to be rid of them. This *Disease* is subject to *Variations*, for sometimes it disappears *a-while*, and afterwards it returns in a *few Days*.
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The *Cure* of this *Disease* is suited to the different *Circumstances* which attend it. If there is an *Inflammation*, the *Pap* of a roasted *Apple*, laid in the Form of a *Plaister*, or *Poultice*, soon disperses it, and sometimes abates the *Tumour*. If it *hardens* and becomes *concrete*, apply the *Emplastrum Diabotanium*, or that of the *Abbot de Grace*.

IF it does not disperse by these Means, it must be opened with the *Point* of a *Lancet*; seldom any *Matter* is found in it, for often it is only a kind of *hard Flesh*, which must be consumed by a *liquid Caustick*; afterwards let the *Plaister* of the *Abbot de Grace* be laid on, and let the *concrete Flesh* be touched several Times with the *liquid Caustick*, till it be intirely wasted. Great Care must be had not to put too much *Caustick*, at a Time, lest the *Eye-lid* should be pierced, and the *sound Part* beyond the *Tumour* be consumed.

IF the *Crithe* comes on the *lower-Eye-lid*, it is generally more on the *Inside* than on the *Outside*; it is easily seen, if the *Eye-lid* be turned down. It is cured, by consuming it with the *Lapis Infernalis*,

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provided

provided the following *Method* of removing it be not preferable.

THE *Eye-lid* being turned down, pass a *crooked Needle* threaded with *Silk* thro' the *Tumour* ; when the *Needle* is thro', let the *Operator* take in one *Hand* the two *Ends* of the *Silk*, to raise the *Tumour*, whilst, having a *Lancet* in his *other Hand*, he makes an *Incision* with it in the *Membrane* which covers the *Tumour* towards the *Edge* of the *Eye-lid* ; then let him lay by his *Lancet*, let him take a Pair of *strait Scissars*, and, introducing one *Side* of them into the *Orifice*, let him, with the *other Side*, which must be directed on the *Side* of the *Globe* of the *Eye*, cut the *Tumour*, as near its *Base* as he can. The *Wound* is, for the most Part, healed in *eight Days* with a *Collyrium* made of *Water*, ten Parts to one Part of *Spirit of Wine*. There are likewise other little *Tumours* which come on the *Edges* of the *Eye-lids*, and, by Reason of their *Whiteness* and *Hardness*, are called *Periosis* or *Hailstones*. Their *Size* is not always the same ; if they are *large*, they may be separated from the *Eye-lid* by a *Lancet*, with which an *Incision*

ſion is to be made in the *Skin* which covets them ; then, with a *ſmall Scoop*, the *Body* of the *Tumour* is to be drawn out. Both theſe Sorts of *Tumours* will come out equally, if, inſtead of an *Incifion*, the *Skin* which covers them is touched *once* or *twice* by the *Lapis Infernalis*, which will conſume it.

BESIDES theſe, there is another Sort of *Tumour* which grows on the *Eye-lids*, called *Lithiaſis* or *Gravel-stone* ; they are generated by a *concrete Humour*, which changes, as it were, to little *Pebbles* or *Grains* of *Sand*. They are *cured*, in the ſame Manner as the foregoing *Tumours*.

C H A P. VI.

Of Warts of the Eye-lids.

THREE Sorts of *Warts* are obſerved to come on the *Eye-lids* ; the *firſt* Sort is *ſmall*, *narrow*, *pendulous*, its *Root* terminates in the *Surface* of the *Skin*. The *ſecond* Sort is *larger*, and penetrates *deeper* than the *firſt*. The *third* is not only *larger* than the former, but has likewiſe *Roots*

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which

which *mine* thro' all the *Skin*; it has several *Blood-vessels*, which are spread on the *Surface* of the *Wart*, and terminate in several *ingrailed Bundles*; upon the least *Touch*, they emit *Blood*. This *last Sort* of *Warts* is very dangerous, for it often changes to a *Cancer*; it excites an *Itching* that makes the *Patient* rub it often with his *Hand*; and, by his *Rubbing* them often, they *excoriate*, and become a *malignant cancerous Ulcer*. The *two first Sorts* are not dangerous.

REMEDIES proper for *Warts*, which grow in any other *Part* of the *Body*, may be applied to *cure* the *two first Sorts*; such are the *Milk* of the *Fig-tree*, the *Juice* of the *greater Celandine*; let the *Surface* of the *Warts* be *touched* with them. They may likewise be *rubbed* with *Purslain* and *Wartwort*, till these *Herbs* emit their *Juice*. If they do not yield to these *Remedies*, let the following *Method* be used: If the *Base* of the *Warts* be *narrow*, *ketch* them with *Pincers*, a little beyond their *Base*; then *tye* them with *Silk* in a *double Knot*. This *Ligature* makes these *Tumours* decay, by *choaking* the *Vessels* that nourished them.

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If the *Warts* lie very deep, touch their Surface with a *Straw* wetted in a liquid *Caustick*. The *Caustick*, in once or twice applying it, will consume them, bring them to a *Suppuration*, and, at the same Time, to an *intire Decay*. Lay on a *Plaister of Diapalma*, till they are perfectly healed.

As to *Cancerous Warts*, I cure them with a *Water*, which both wastes the *Wart*, and cicatrises the *Ulcer*.

C H A P. VII.

Of the Cancer of the Eye-lids.

THE *Eye-lids* are as subject to *Cancers*, as the other *Parts* of the *Face*. This *Disease* is still more fatal, since the *Meddling* with it has been always prohibited; hence it is stigmatised by the Name of *Noli me tangere*. In Reality, the *Operations*, performed for its *Cure*, are seldom attended with good *Success*. Besides, if you apply *Topick Medicines*, which do, in the least, irritate the *Acrimony* of its *productive Humour*, it increases, in a short Time, so considerably, that there remain no *Hopes*

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of curing or mitigating it, even by these Remedies which seem most appropriated. The Causes of this Disease depend as much on the Depravation of the whole Mass of Blood, as on the Distemperature of the particular Part in which the Humour is lodged.

I HAVE observed five Sorts of Diseases in the Eye-lids, which generate Cancers. The first is a hard Tumour, which grows commonly on the upper Eye-lid; it has Vessels, towards its Base, filled with Blood of a leaden Colour; the Patient feels shooting Pains, by Intervals.

THE second Species is generated by a Wart seated on the great Angle of the Eye under the Conjunction of the Eye-lids; this Wart has deep Roots and Blood-Vessels, as was observed in the precedent Chapter.

THE third Species is a Sort of Varix; its Vessels are filled with a blackish Blood, which gives them a leaden Hue. In these three Cases, the Blood, by stagnating, becomes acrid, corrodes the Skin and the Eye-lids, and so forms a cancerous Ulcer with fungous Excrescences. These Fungosities, in Process of Time, waste of themselves, and the

the *Ulcer* increases to such a Degree, that it extends over the rest of the *Face*, and its *Edges*, at length, become *callous*.

THE *fourth Species* proceeds from a *Flux* of *Tears* which fall constantly on the *Caruncula Lacrimalis*, whether there be a *Fistula*, or not; these *Tears*, thro' their *Malignity*, *excoriate* and *ulcerate* the *Caruncle*; hence follows a *cancerous Ulcer*, which afterwards consumes and eats away the *lower Eye-lid*, the *Edges* of which, at length, become *callous*, as in the *foregoing Case*.

THE *fifth Species* may happen by a *Blow*, received on the *Edge* of the *Orbit*, or on the *adjoining Parts* of the *Eye*, which mortifies the *Flesh*, breaks the *Texture* of its *Vessels*, and causes a *Stagnation* of the *Blood*, which becomes *acrid*, and so changes the *Disease* to a *Cancerous Ulcer* with *callous Edges*. I have seen an *Instance* of this Nature happen to M. *Ferrand*, *Lieutenant General of Artillery*, from the *Crack* of a *Bomb*, that had struck him on the *Os Mali*.

ALL *Cancers* of the *Eye-lids* have *fatal Consequences*, for, when the *Ucler*, which

produced them, has *callous Edges*, it is seldom *cured*; besides, this *Ulcer* is seldom found without a *Callosity*; if it is without a *Callosity*, then some *Hopes* may be had of *cicatrizing* it by Means of my *Water*, mentioned when I *treated* of *Cancerous Warts*. I have *cured* several with this *Remedy*; but, when the *Edges* of the *Ulcer* are *callous*, a *palliative Cure* is our only *Resource*.

PERSONS, unfortunately afflicted with this *Disease*, as they earnestly desire to be *cured* of it, seek after *Remedies*, in *Hopes* of their great *Efficacy*; but daily *Experience* shews, that these *Remedies*, instead of *lessening* the *Disease*, on the contrary, *increase* it: For which Reason the *surest Method*, in the *present Case*, is to keep an *exact Diet*, to abstain from whatever may *vitate* or *heat* the *Blood*. Such are *salt, spicy Food, heavy gross Meats, Legumes, &c.*

APPLY to the *Part* affected the *distilled Waters* of *Frogs-Spaw*, and of *Morell*, in which you may dissolve some *Grains* of *Sugar* of *Saturn* and of *burnt Lead*. Take likewise some *burnt Lead*, reduce it to a very fine *Powder*, incorporate it with
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the *Mucilage* of *Linseed*, spread it on *Lint*, and lay it to the *Part*: It corrects the *Sharpness* and *Malignity* of the *Humour*. Where-ever it appears that the *Use* of any one *Remedy*, tho' ever so proper, fails to give *Ease*, substitute another, as the *Arquebuse Water* distilled from *Morell Water*, instead of *Wine*. Let the *Sore* be washed *Morning* and *Evening* with this *Water* warmed; wet *Pledgets* in it, and lay them on; as they grow dry, let them be sprinkled, from Time to Time, with the same *Water*; in which you may mix some *Terra Sigillata* or *Sealed Earth* in *Powder*, the *Preparations* of *Lead*, and all other Things which correct the *sharp corrosive Humour* that produced the *Cancer*. *Authors* abound with an infinite Number of *Remedies* for this *Disease*; but great *Care* must be taken not to make *Use* of any, which, thro' the *Acrimony* and *Activity* of their *Parts*, may be the least *injurious* to it. The *Patient* must be *purged* and *let Blood*, from Time to Time, as shall seem necessary.

C H A P. VIII.

Of the Scab and Tetters of the Eye-lids.

THE *Eye-lids* are liable to *Scabs*, which differ in Proportion to the *Largeness* of the *pruriginous Ulcers* that are formed about their *Edges*; they differ likewise, in Proportion to the *Malignancy* of their *productive Humour*.

THIS *Disease* is known by the following *Signs*, viz. a *Weight* and *Heaviness* in the *Eye*, *Swelling* in the *Eye-lids* with *Pain* and *Itching*, *Heat* and *Redness* at the *Corners*, and in the *Conjunctiva*. A *viscid Humour*, mixed with *pungent Tears*, flows from the *Ulcers*, and, in Proportion to its *Viscosity*, it glews the *Eye-lids* together in the *Night-time*. This *Disease* sometimes affects only a *Part* of the *Eye-lid*, and sometimes the *whole Eye-lid*. If this *Disease* has been of a *long Duration*, and chiefly in *old People*, the *lower Eye-lid* grows considerably thick, and turns downwards, which makes the *Cartilage* look like *raw Flesh*.

THE *Tetter* of the *Eye-lids* very much resembles their *Scabs* (the *Appearance* of
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raw Flesh excepted) its *Signs* are almost the same; and, if the *Eye-lids* be turned out, they appear *red* in their *Inside*, and seem to have *Inequalities* somewhat like the *small Grains* of *Figs*. The *Cause* of all these *Diseases* proceeds from a *Blood* tainted with a *saline corrosive Humour*, that is discharged on the *Eye-lids*, by which they are damaged, in Proportion to the *Malignancy* of the said *Humour*.

THE *immediate Cause* of these *Diseases* is often the *Ulceration* of the *glandulous Vessels*, which furnish the *Film* on the *Edge* of the *Eye-lids*; when these *Vessels* are *ulcerated*, they emit constantly a *viscid slow Humour*, which entertains and increases their *Ulceration*.

ALTHO' this *Disease* is, for the most Part, *very rebellious*, yet a *speedy Cure* of it may be attained by *Remedies* which sweeten the *Blood*, and lessen the *Violence* of its *Motion* (I shall set down these *Remedies* in the *Chapter* of the *Opthalmy*) provided the following *Remedies* be joined with them.

To cure the *Ulceration* of the *Eye-lids*, when it is caused by the *Itch*, I make Use of the *Lapis Infernalis*, applied in the
Manner

Manner I shall describe, when I treat of *Ulcers* which remain on the *Edges* of the *Eye-lids*, after the *Pustules* of the *Small Pox*. By this Means, they are destroyed in a few *Days*.

NOTWITHSTANDING, before the Application of the *Lapis Infernalis*, I make Use of the following *Water*: It is made with two *Drams* of *Liver* of *Antimony*, half an *Ounce* of prepared *Tutty*, half a *Dram* of *Camphire*, twenty *Grains* of *Cloves*; they must all infuse together, for eight *Days*, in *Eye-bright*, *Fennel*, *Great Celandine*, and *Rue-waters*, of each four *Ounces*. Let some of this *Water* be dropped into the *Eye* three Times a *Day*. Let the following *Pomatum* be used at the same Time: It is made with one *Ounce* of *Butter* melted, purified, and washed several Times in *Plantain* and *Rose-waters*; let a *Dram* of prepared *Tutty* be mixed with this *Butter*. Every Night, going to *Bed*, let a little of it be rubbed between the *Eye-lids*, so that some of it may pass on the *Eye*.

As to *Tetters* of the *Eye-lids*, they do not require such powerful *Medicines*, for the *Ulcerations*, which they cause in the *Inside* of

of the *Eye-lids*, scarce appear. I make Use, with good *Success*, of a simple *Remedy*: It consists of *Sugar of Lead*, and *Salt Ammoniac Crude*, of each *four Grains*, dissolved in *Plantain* and *Rose-waters*, of each *four Ounces*; let the *Eye-lids* be washed with it *three* or *four Times* a *Day*.

THESE Remedies, together with *Internals* proper to correct the *bad Quality* of the *Blood*, and to dissipate its *sharp Humour*, will procure a *speedy Cure* of this *Disease*.

C H A P. IX.

Of the Defect of the Cilia or Eye-lashes, called Trichiasis.

THO' the *Displacing* of the *Eye-lashes* seems to be a *light Disease*, yet we see Persons who have been attacked with *very obstinate Defluxions*, and have even *lost* their *Sight* by this *Indisposition*. In short, it is evident, that the *Eye-lashes*, turning their *Points* against the *Cornea* and the *Conjunctiva*, are like so many *little Pins*, that continually prick these

these Places which their *Extremities* touch, and there generate *Ulcers*, which leave *Cicatrices* sometimes so very deep, that they often *destroy* the *Sight*; if these *Ulcers* continue, the *Patient* cannot bear the *Light*, nor discern any *Object*.

THESE *Authors*, who have wrote of the *Trichiasis*, have established *three Sorts*, which, I think, may be reduced to *two*.

THE *first* is caused by a *Displacing* of the *Eye-lashes* which *turn inwards*, whilst the *Cartilage* of the *Eye-lids* still retains its *natural Situation*. The *second Species* is occasioned by the *Cartilage* of the *lower Eye-lid*, which *inclines inwards*, and *turns* the *Hairs* towards the *Eye*; so that their *Ends* bear against the *Globe* of the *Eye*; when the *Cartilage* *turns inwards*, there appears a *Swelling*, on the *Outside* of the *Eye-lid*, somewhat like an *Emphisema*.

THE *Cause* of the *first Species* proceeds from the *Small Pox*, the *Itch* and *Tetter* of the *Eye-lids*, which, by *ulcerating* the *Pores* of the *Skin*, thro' which the *Hairs* pass, make them *shed off*; these *Ulcers*, when they *cicatrise*, close that *Part* of the *Skin*, thro' which the *Hairs* grew, so that
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the new Hairs, which are to grow, finding that Part less pervious, take another Road; and, instead of turning outwards, they are bent against the Eye, towards which they find less Resistance.

THE second Sort is produced by a Humour, collected between the Orbicular Muscle and the Skin which covers it; it occasions a Bloating in the Eye-lid, its Cartilage turns inwards, and the Eye-lashes are bent along with it against the Eye; hence follows the second Species, which we have now mentioned. 'Tis mostly incident to old People.

THE Prognostick of this Disease is difficult, for it often keeps an habitual Ulceration, with continual Weeping, and Uneasiness at the Light; it is sometimes attended with the intire Loss of Sight.

THE Cure of the first Sort consists in plucking out the Hairs which turn against the Eye, and in preventing their Return; which is done by lightly touching the Place of their Root with the Lapis Infernalis, which cicatrises it.

THE second Species is seldom cured by Topick Medicines. Let a Dram of Spirit
of

of Salt be mixed with *half a Pint* of Spirit of Wine, to rub the Eye-lids with it *five or six Times a Day*. When the Disease affects the *lower-Eye-lid*, make a small Bandage on the Eye-lid; this eases the Patient, whilst he wears it; this Bandage, by compressing the Skin, makes the Cartilage re-assume its natural Situation, and, by that Means, it is sometimes intirely restored.

BUT the *surest Remedy* is to perform the following Operation: Hold the Skin the whole Length of the Eye-lid with two Pincers, one placed at *three Lines* Distance from the *great Angle*, and the other at the same Distance from the *little Angle*; when you have thus raised all the Skin, cut with your Scissars what you think requisite, according to the Direction of the Folds of the Eye-lids; then have *three Needles*, each threaded with a *waxen Thread*, to sew up the Skin with *three Stitches* only, one in the Middle, and the other two towards each Extremity; keep them together by a Knot in the Form of a Rose, beginning by the middle Stitch. In order to make the Operation more secure, Care must be taken to place

place the *first Stitch*, in the *Middle* of each *Lip* of the *Orifice*. The *side Stitches* must be made *obliquely*, and in such Manner that the *Stitch*, in the *lower Lip*, be nigher to the *middle one* than the *Stitch* in the *upper Lip*, viz. about the *Breadth* of a *Line* or the *twelfth Part* of an *Inch*. The same *Caution* is to be observed, as to the *Stitch* on the other *Side*. When the *Stitches* are thus disposed, by drawing the *two Ends* of the *Cartilage obliquely*, the *Eye-lid turns outwards*. When each *Stitch* is tied, let the *Thread* be cut near the *Knots*, and lay on a *Compress* wetted in *common Water*, mixed with a *very small Quantity* of *Spirit of Wine*. The *Compress* must be kept *constantly moist*, the *Space* of *four or five Days*, in which *Time* the *Trichiasis* is *commonly cured*. You must take care, the *fourth Day*, to draw the *Threads* out of the *Orifice*, provided it be *closed*.

C H A P. X.

Of the Palsy of the Upper Eye-lid.

THE *upper Eye-lid* becomes *paralytick* in a *twofold* Manner; *first*, when it is *drawn down*, and cannot be *raised*; *secondly*, when it is *raised*, and cannot be *brought down*. This is only a *particular Palsy* of its *Muscles*. In the *first Case*, the *Elevator* is affected; in the *second*, the *Orbicular* or the *Deprimens*. This *Palsy* is either *perfect* or *imperfect*: It is said to be *perfect*, when the *Eye-lid* is *almost destitute* of any *Movement*; it is called *imperfect*, when the *Eye-lid* has *some Motion*; and this *last Sort* has *several Degrees*, which *differ* only in their having *more or less Motion*. When the *Eye-lid* remains *always open*, and without any *Movement*, it is what the *Antients* called the *Hare's-Eye*.

THE foregoing *Discourse* shew these *two Diseases* are produced by the *same Cause*, with this *Difference*, that, when the *Eye* remains *always shut*, in that *Species* of *Palsy* the *Musculus Attollens* is affected;

fectcd; on the contrary, when the *Eye* remains *always open*, the *Orbicular* is defectcd. In the *Palsy* in general, both *Sense* and *Motion* are *often lost*; but, in this *Sort* of *Palsy*, the *Defect* is in the *Movement*, whilst the *Sense* is not injured, or, at least, *very seldom*.

As all *Palsies* are, for the most Part, the *Effects* of an *Apoplexy*, this may be called a *Sort* of *light*, and, as it were, an *insensible Apoplexy*. The *Matter*, which caused it, is thrown on the *Nerves*, which supply the *motory Fibres* of the *Eye-lids*, *obstructs* and *compresses* them: *Purgatives* and all *Remedies*, made Use of for the *Palsy* in general, are *proper* in the *present Case*. The *hot Mineral Waters*, the *Success* of which we see *daily* experienced, are equally *serviceable* in this *Palsy*. I have *cured* several of this *Disease* by *Purges*, *Sudorifics*, and, above all other *Remedies*, with *Viper-broths*.

THE following *Fumigation*, received in the *Eye* and the *neighbouring Parts*, may be used: 'Tis made of *Rosemary*, *Thyme*, *Sage*, and *Wine* boiled in a *Coffee-pot*; let the *Pot* be covered with a *Funnel*, the

broader Part of the Funnel must fit the the Coffee-pot exactly ; let the Eye be placed before the Steam, which comes out of the End of the Funnel, as from a little Chimney. This must be done Night and Morning, for about a Quarter of an Hour. It is of the same Efficacy, as the Pumping of hot Mineral Waters on paralytick Parts. Care must be had to place the Eye at a due Distance, to support the Heat. The following Method must be used, at the same Time : Take a little Pewter-pan, that will cover the Eye-lids, with a Pipe at its Bottom in the Form of a Handle, about four Fingers in Length. Let this Pipe be filled with Spirit of Wine distilled several Times on Cloves, Lavender, Origany, and Thyme : Afterwards, lay the Pan on the Eye, and beat the Handle with your Hand. The Spirit, thus rarefied, bears on the Part, and there excites the animal Spirits in the motory Fibres. Care must be had to repeat this three Times a Day. Several have been cured by these Means, especially when the Disease has not been inveterate.

THE *Eye-lids* are likewise attacked with a *quick, involuntary Motion or Vibration*, which I take to be a *convulsive Movement* of the *Eye-lids*. When this *Accident* happens *seldom*, it is of *no Consequence*: It is cured by rubbing the *Hollow* of the *Hand* with the *Queen of Hungary's Water*, and applying it afterwards to the *Part*, for *some Moments*, *three Times a Day*.

THIS *convulsive Movement* degenerates sometimes to a *total Convulsion* of the *Eye-lid*: Then, the *Eye-lid* remains *shut*, about a *Minute*, and is afterwards *raised*; this happens often in the *Day*; during the *Time* of this *Convulsion*, the *Fibres* of the *Orbicular Muscle*, which it *affects*, become *stiff and tense*: It may be compared to that *Sort of Convulsion*, commonly called the *Cramp*, which seizes the *Leg* in the *Night*, when, in *waking*, it is *over-stretched*; in which *Position* it remains, a *short Time*, before it can be *drawn back*. The *Cause* of this *Convulsion* must be deduced from the *irregular Motion* of the *animal Spirits*, which, flowing with too great *Rapidity* into the *Fibres* of the *Orbicular Muscle*,
H 3 *obstruct,*

obstruct, for a short Time, the Action of the Musculus Attollens.

TWO Things, in a Moment, appease this Convulsion: The first is, to rub the Hand round the Orbit and the Eye-lids; the second is, to make the Persons sneeze, in the Time of the Fit.

ALTHO' these two Means give immediate Ease, yet they do not prevent the Return of the Convulsion; for which Reason, proper Remedies, both internal and external, must be employed, as Bleeding, Purges, and Anti-epilepticks; such are Piony-Roots and Seed, a Decoction of the Sudorifick Roots and Woods, the Mistletoe of the Oak, Cinnabar of Antimony, the Volatile Salts, &c. Among all these Remedies, I have not found a more efficacious one, than the sublimed Flowers of Salt Armoniac, mixed with the Caput Mortuum of Oil of Vitriol; they must be washed in common Water, to carry off their Salts, and afterwards they must be dried; three Grains of them must be taken, Night and Morning, in the Confectio Hyacinthi. This Medicine commonly removes the Fits of the Convulsions, before the eighth Day. As to external Remedies,

medies, let the *upper Part* of the *Eye-lids* be rubbed with an *Ointment* made of the *Oil of Earth-worms*, mixed with some *Drops of Sal Volatile Oleosum*, or compound *Balm-water*. The *distilled Water of Elder-flowers* is likewise very *serviceable*, in the *Convulsion and Palsy* of the *Eye-lid*.

WHEN the *Eye-lid* remains *shut*, and cannot be *raised*, there is an *Operation*, which takes off *Part* of the *Skin* of that *Eye-lid*. When the *Wound* is *healed*, and the *Skin* is *less extended*, the *Musculus Attollens* of that *Eye-lid* recovers its *Movement*, the *Disease* is *cured*, and the *Person* opens and *shuts* his *Eye-lid*, at *Pleasure*.

C H A P. XI

Of the Distortion of the Eye-lids.

ALL *Authors*, who have, hitherto, wrote of this *Disease*, have confounded the *Distortion* of the *Eye-lids* with their *Turning out*, and with the *Palsy* of the *Orbicular Muscle*, which *binders* the *Shutting* of the *Eye*. Both *Antients* and *Moderns* have treated of this *Disease*, by

the Name of the *Hare's-Eye* ; they confounded it with the *before-mentioned Disease*.

I UNDERSTAND by this *Distortion* a *Deformity* of the *Eye-lids*, occasioned by a *Solution* of *Continuity* in the *Skin*, or *Cartilages* which border them. It often comes, after they have been *burnt*, or *cut*, and after the *Operation* of the *Fistula Lacrimalis*. When it is caused by a *Burn*, the *Eye-lid* takes a Form somewhat like the *Beak* of an *Ewer* : When it proceeds from the *Cutting* of the *Cartilage*, and the *Skin* which covers it, the *Eye* appears somewhat like the *Mouth* of a *Hare*. Lastly, that *Distortion*, which sometimes follows the *Operation* of the *Fistula Lacrimalis*, disjoins the *Cartilages* towards the *Nose*, so that the *Extremity* of the *lower Cartilage* sinks into the *Place* of the *Operation*. This *Disease* may easily be known, from the *Account* we have given of it, without insisting on a *Description* of its *particular Signs*. It now remains to enquire, Which *Species* of *Distortion* is *curable* ? The *Distortion*, caused by a *Burn*, admits of *no Cure*, if the *Cartilage*, which borders the *Eye-lids*, has been *much damaged* ; for, if
the

the *Burn* is very great, it injures the *Eye-lids* to such a Degree, that they can never be restored. But, if the *Distortion* is small, and the *Cartilage* is burnt only in the inner Part of the lower *Eye-lid*, whilst the exterior Part remains untouched, then it may be cured.

HAVING, first, turned out the *Eye-lid*, touch the inner Surface of it lightly with the *Lapis Infernalis*; the Violence of it will be abated, if lukewarm Water be instantly applied to the Part, which will come to a Suppuration, that will efface the Fold of the *Cartilage*, bring it to touch the Globe of the Eye, and so replace the *Eye-lid* in its natural Situation. When the *Distortion* is caused by the Cutting of the *Cartilage* and the Skin, it may be cured by a Suture instantly made, so that both the Extremities of the *Cartilage*, which were severed, be closely united. As the Wound, which causes the *Distortion*, equally divides the Skin and the inner Membrane of the *Eye-lids*, together with the *Cartilage* which borders them; in order to avoid Pricking the *Cartilage* by the Suture, let it be made in the following Manner: First, Take a crooked Needle, having

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having a *small Edge*, let it be *threaded* with a *waxed Thread*; then *stitch* the *two Lips* of the *Wound* of the *inner Membrane* near the *Edge* of the *Eye-lid*, draw out the *Needle*, and leave the *Thread* with its *two Ends hanging out*; afterwards, with a *Silver Needle*, *pointed with Steel*, *stitch* likewise the *Lips* of the *Wound* in the *Skin* near the *Edge* of the *Eye-lid*, leave this *Needle* in the *Wound*, and *twist* the *Threads*, that were left *hanging*, several *Times* across it, in the *Shape* of the *Figure of Eight*. In *twisting* the *Threads*, *Care* must be had, that *each End* of them, as it is brought over, may, first, pass under the *End* of the *Needle* which answers it, otherwise it may *enter* into the *Wound*, and *hinder* the *Closing* of it. Afterwards, a *cooling Collyrium* must be laid on, till the *Wound* is *intirely healed*; at which *Time* the *Needle* and the *Threads* must be *drawn out*. When a *Person* receives a *Stroke*, that *severs* the *Cartilage* of the *Eye-lids*, and has been *dressed* by *ignorant People*, who did not know how to bring the *Eye-lids* together as *close* as they should be; after the *Wound cicatrises*, there remains a *Slit*, in
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the Form of a *Hare's Mouth*. This *Accident* happens *ofteneft* to the *upper Eye-lid*. Some *Authors* pretend that, if *cooling Remedies* be applied to the *Lips* of the *Wound*, and if they are *stitched*, in the same Manner as the *Hare's Mouth*, with a *Silver Needle*, the *Eye-lid* may be *restored* to its *former State*. But this *new Incision* shortens the *Cartilage* to such a *Degree*, that it can never extend sufficiently to *close*, and *cover exactly* the *Globe* of the *Eye*, for which Reason this *Operation* is *useless*. Of which my own *Experience* convinces me; for I *once* performed it on the *upper Eye-lid* of a *Person*, who had received the *Wound* *some Years* before.

As to the *Distortion*, which follows the *Operation* of the *Fistula Lacrimalis*, it is absolutely *incurable*, because the *Cicatrice*, subsequent to the *Cure*, being *too deep*, *contracts* the *lower Eye-lid*, and so *binds* its *Union* with the *upper*.

C H A P. XII.

Of the Inflammation and Erysipelas of the Eye-lids.

THE *Eye-lids* are subject to the *Erysipelas* (or *St. Anthony's Fire*) and to other *Inflammations*, which often turn to *Abscesses*. As their *Signs* are manifest, of themselves, it is needless to describe them: Such are a *Swelling*, *Redness*, *Pain*. Remedies, proper for *Inflammations* in other *Parts*, are serviceable in the present *Case*: Such are *Bleeding* and *Topical Medicines*.

IN the *Beginning* of the *Inflammation*, when the *Increase* of it is only to be prevented, make Use of a *Collyrium*, made with *Rose* and *Plantain-waters*, and the *White* of an *Egg* beat together; or a *Cataplasm* made of a roasted *Apple*, mixed with the *White* of an *Egg*. But, as soon as the *Tumour* seems to tend to a *Suppuration*, apply *Compresses*, wetted in a *Decoction* of *Marsh-mallows Leaves*, *Melilot Flowers*, *Red Roses*, and *Hyssop*. This *Remedy* will either resolve, or suppurate the *Tumour*. When the *Inflammation* is erysipelalous, I
use

use the *distilled Water of Elder-flowers*, mixed with a *fifth Part Spirit of Wine*; I order the *Part* to be *bathed* with it *first warmed*, *three or four Times a Day*.

IF the *Inflammation* will not disperse, but degenerates to an *Abscess*, it must be *laid open* with all *possible Expedition*, lest the *Matter*, by *stagnating*, might *damage* the *Eye-lid*. In order to *lay it open*, introduce a *Lancet* on the *Side* of the *Tumour*, and *cut open* all the *Skin*, in which the *Pus* is contained, still observing the *Direction* of the *Line*, that makes the *Fold* of the *Eye-lid*, when *open*. After the *Pus* is discharged, lay neither *Tent* nor *Lint* to it; apply *Compresses*, wetted in *Water six Parts* to *one Part Spirit of Wine*. The *Wound* *heals*, in a *short Time*.

C H A P. XIII.

Of the Dropsy of the Eye-lids.

WHEN *Water* is *extravasated* between the *Skin* and the *Muscles* of the *Eye-lids*, it forms a *Sort of Dropsy* in that *Part*. I have *seen a Case* of this
Nature

Nature happen, in the *upper Eye-lid* of *Monfieur Ferrand*, *Lieutenant-General* of the *Artillery*; he died fince, at the *Hofpital of Incurables*, of a *Cancer*, which had feized his *lower Eye-lid*, the *Globe* of his *Eye*, and his *Cheek*. He had a *Dropsy* in the *Abdomen*, his *upper Eye-lid* fwelled, and hung like a *Purfe full of Water*. When I examined it, I found it was a *particular Dropsy* of the *Eye-lid*, which, by *Reason* of its *Weight*, caufed an *uneafy tenfive Pain*; I opened it with my *Lancet*, ftill obferving to cut the *Skin*, according to the *Direction* of its *Folds*: It difcharged a good *Spoonful* of *yellowifh Water*. Some *Days* after, *Monfieur Petit*, a *Paris Surgeon*, tapped his *Abdomen*; the *Serofity*, which came from it, was like that which the *Eye-lid* difcharged, in my *Operation*.

C H A P. XIV.

Of Atheroma's of the Eye-lids.

AN *Atheroma*, in general, is an *en-cysted Tumour*, which comes on *either* of the *Eye-lids*. There are *three Sorts*, which

which derive their *Name* from the *Matter* contained in the *Cystis*.

WHEN the *Cystis* is filled with a *Matter* like *Pap*, it is simply called *Atheroma*, That *Species*, which contains a *Matter* like *Honey*, is called *Meliceris*. Lastly, when the *Tumour* contains *Matter* of a more solid *Consistence*, and of the *Colour* of *Tallow*, it is called *Steatoma*. As these three *Sorts* differ only on Account of their *Matter*, I comprehend them all under the *Name* of *Atheroma*.

THE Cause of these *Humours* proceeds from the *Dilatation* of some *Ducts*, or *Fat Vessels*, by which a *Cystis* is formed; from these *Vessels* the *Matter*, contained in the *Cystis*, is continually supplied: This *Matter*, in Proportion to its *Tenacity*, and the *Time* of its *Stagnation*, makes all the *Variety* found in these *Tumours*; they increase sometimes to the *Bigness* of a *Nut*.

THESE *Tumours* can both be seen and felt, but the *Nature* of the inclosed *Matter* can only be known by laying them open. These *Tumours* are neither dangerous, nor painful; as the *Matter*, which they contain, is not *acrid*, it causes no *Inflammation*.
The

The *Inconveniency*, that attends them, is a *Distension* and *Weight* in the *Eye-lids*, which are somewhat *deformed* by them.

NOTHING, but the *Operation*, can help these *Tumours*. *Resolvent Medicines* are of no *Service*. Let the *Patient* be, first, prepared by *Bleeding* and *Purging*; afterwards, let him be placed in a *proper Posture*; then pinch the *Skin*, that covers the *Tumour*, with *two Fingers*, and, with your *Scissors*, cut a *Piece* of it, about the *Breadth* of half the *Tumour*, according to the *Direction* of the *Wrinkles* of the *Skin*. Then, with an *Errhine*, pierce the *Tumour*, and raise it gradually, whilst you loose it, with a *Bistoury*, from the rest of the *Skin*, and from the *Muscle* of the *Eye-lid*. When the *Tumour* is loosed from all its *adjacent Parts*, cut the *Bottom* of it with your *Scissors*, as near its *Root* as possible. Dress the *Wound* with a *Digestive*, laying over it a *Plaister* of *Diapalma*. If all the rest of the *Cystis* does not come away by *Suppuration*, touch it with the *Lapis Infernalis*; by this *Method*, and by dressing the *Wound*, till it be intirely cicatrised, the *Tumour* will be cured.

ALL those *Tumours*, which I ever opened, contained a *Matter* like *Tallow*, and were cured by the *Method* I have now proposed. To prevent any *Deformity*, you must take Care never to make a *crucial Incision* on the *Eye-lids*, when these *Tumours* are to be removed.

CHAP. XV.

Of Adipous Tumours.

THE *Tumours*, known to the *Antients* by the Name of *Adipous*, are very rare; I never saw but three Persons attacked with this *Disease*, and then in their upper *Eye-lid* near the little *Angle*. *Authors* have wrote variously of this *Disease*; some pretend it is formed by watery *Humours*, and have called it *Hydatides*, which signifies a transparent *Purse* full of *Water*; but, as I am convinced by *Experience*, that it is *Fat*, I prefer the Name of *Adipous*.

THIS *Humour* is seated in the upper Part of the *Orbit* towards the *Glandula Lacrimalis* between that *Gland* and the little An-

gle. Its Sign is a Swelling of the upper Eye-lid, which distends and elongates the Skin, so that it forms a Crease, or Fold, which descends to the very Edge of the upper Eye-lid. When the Eye-lid is raised, and the Tumour is press'd, it sinks in and disappears; if you look under the Eye-lid, it appears towards the little Angle; and, when the Pressure is removed, it returns to its former Place.

NOTHING, but a proper Operation, can help these Tumours. Wherefore, the Patient being first duly prepared, and placed in a proper Posture, cut the Skin, that covers the Tumour, according to the Direction of its Folds; but, as the Skin of the upper Eye-lid is over-extended, you must observe to cut a Part of it proportioned to the Length of the Tumour; then, with an Errhine, raise the Tumour gradually, whilst you loose it with the Point of a Bistoury from the contiguous Parts; when you have come to its Root, cut it with your Scissars, exactly at the Place of its Adhesion; if any Part of the Cystis remains at the Bottom, after the Operation, it may be consumed with a liquid Caustick, or the

Lapis

Lapis Infernalis. Let the *Wound* be dressed in the same Manner as an *Atheroma*, and it will soon *heal*. I have performed this *Operation* with good *Success*.

C H A P. XVI.

Of the Turning out of the lower Eye-lid.

THE lower Eye-lid is sometimes tumefied, and becomes, as it were, fleshy on the Side of the Globe of the Eye; and, as the Globe does not give way to the Tumour, the Eye-lid with its Cartilage is turned outwards. This Swelling is produced by two Causes: The first is an Ulceration of its inner Membrane, which becomes ulcerated thro' the Acrimony of the Saline Humours, that humect it, and so generates these fungous Excrescences which tumefy the Eye-lid. The second Cause depends on the Globe of the Eye, whether the Swelling be produced immediately in the Globe, or whether the Globe be thrust outwards by some extraneous Body; then, as the lower Eye-lid is press'd by the Globe

of the *Eye* against the *Edge* of the *Orbit*, it swells considerably, the *Compression* hindering the free *Return* of the *Blood* thro' the *Veins*: This *Swelling* is soon followed by a *Reversion* of the lower *Eye-lid*.

To remedy this *Disease*, when it proceeds from the *first Cause*, you must begin by *sweetening* the *Acrimony* of the *Lacrimonial Lymph*, altho' the *correcting* of its *Acrimony* does never alone restore the *Eye-lid* to its *natural Situation*.

As I found all *Sorts of Medicines* ineffectual in the *Cure* of this *Disease*, in order to *succeed* in the *Cure* of it, I judged that the *diseased Eye-lid* should be brought to a *Suppuration*, which might empty its *Vessels*, and destroy the *fleshy Excrescence* produced by the *stagnating Blood*; for which Reason I *turn'd out* the *Eye-lid*, and *touch'd* all its *inner Surface* with the *Lapis Infernalis*, applying instantly *warm Water* to *mitigate* its *Violence*. A *Suppuration* ensued for *two Days*, and, as it *abated*, I *renewed* the *Application* of the *Lapis Infernalis*; which I *continued*, till I thought the *Tumour* was sufficiently *diminished*, so that the *Cartilage*, by its own *Elasticity*, might

might raise the *Eye-lid*, and so restore it to its *first Situation*. This *Method* always succeeded.

As to the *second Cause*, I shall treat of it, in the *Chapter* of the *Swelling* of the *Globe* of the *Eye*; for as to the *Defect*, which it causes in the *Eye-lid*, there is no other *Remedy*, but what I have proposed for the *Turning out* of the *Eye-lid* in the *first Case*, except an *Operation* which will at once take off the *fleshy Part*.

CH A P. XVII.

Of the preternatural Cohesion of the Eye-lids.

THE *Eye-lids* are said to be united, when the *upper adheres* to the *lower*, or when *either* of them, or when *both* are joined to the *Conjunctiva*. This *Disease* may be produced by *four Causes*.

THE *first* is from the *Birth*: When *Children* come into the *World*, they cannot open their *Eyes*, for the *Continuity* of the *fine Membrane* which covers the *Conjunctiva*, and terminates at the *Extremity* of each *Eye-lid*, hinders their *Opening*. In

this Case, if the two *Extremities* of the *Eye-lids* are united in their whole *Length*, their *Cohesion* will be the same; but, if the *Eye-lids* are joined only in half their *Length*, the *Cohesion* will then affect that *Space* only. Tho' all *Cohesions* from the *Birth*, which I have ever seen, reached but from the *little Angle* to the *Middle* of the *Eye-lids*, or a little farther, I do not doubt but some *Children* are born with their *Eye-lids* intirely joined; and, if they are not commonly found thus joined, it must be attributed to the *Tears* which, as they are naturally forced towards the *great Angle*, break the *Cohesion* of that *fine Membrane* towards the *Nose*, and, as it were, perform half the *Operation*.

THIS *Species* of *Cohesion* of the *Eye-lids* is easily known, if you raise one *Eye-lid*, and draw the other down; for then the *Parts*, which are not joined, open, and a *fine Pellicle* appears within their *inner Edges*, and hinders their *Opening* farther.

THE *second Cause*, producing the *Cohesion* of the *Eye-lids*, is *Ulcers*, lying on their *Edges*. These *Ulcers* for the most Part, are attended with an *Inflammation* of the *Conjunctiva*, and consequently with

an *Uneasiness* at the *Light*; this obliges the *Patient* to keep his *Eyes* closed. The continual *Keeping* of the *Eye-lids* together occasions the *Coalition* of their *Edges*, chiefly towards the *little Angle*, for the *Reason* above-mentioned.

THE *third Cause* of this *Cohesion* proceeds from *Burns*, which damage both *Edges* of the *Eye-lids*. When the *Eye* becomes thereby *inflamed*, and cannot bear the *Light*, the *Patients* are necessitated to keep their *Eye-lids* always *shut*, to which their *Cohesion* succeeds.

THE *fourth*, in which the *Eye-lids* and the *Conjunctiva*, together with their *two Edges*, are *joined*, happens, when the *Burn* has damaged both *Edges* of the *Eye-lids*, and their *inner Surface* together with the *Conjunctiva*.

THIS *Accident* is often caused by *Quick-lime* that flies into the *Eyes*, either in *extinguishing* it, or by some other *Means*, and burns these *Parts* of the *Eye-lids*, and the *Conjunctiva* on which it falls. An *Inflammation* ensues, the *Eyes* are kept *shut* a long *Time*, at length the *Quick-lime* escapes out of the *Eye* along with the *Tears*, then the

excoriated Parts of the Eye-lids and of the Conjunctiva cicatrise together, and so produce this last Species of Cohesion of the Eye-lids.

THIS *Disease* is easily known, for, by a *light Inspection* of the *Eye*, it is soon perceived, whether only the *Eye-lids* adhere together, or whether the *Globe* of the *Eye* is joined to the *Eye-lids*.

THE *Prognostick* of this *Disease* may be thus given: If the *Cohesion* of the *Eye-lids* be from the *Birth*, it is easily cured; but, when it is caused by a *Burn*, or by an *Ulceration* of the *Eye-lids*, the *Cure* is more difficult, and then so much the more, if the *Eye-lid* adheres to the *Globe* of the *Eye*. This *Disease* can only be cured by separating the *Parts* joined, and by preventing their *Re-union* after the *Operation*. When the *Cohesion* is from the *Birth*, introduce a *hollow Probe* thro' the *Aperture* towards the *great Angle*; advance it, as far as you can, towards the *little Angle*. Afterwards glide along the *hollow Probe* a *strait Bistoury* and cut the *Membrane*, which makes the *Adherence*, even to the *Conjunction* of the *two Cartilages* towards the
little

little Angle: And, to hinder the *Re-union* of the *Membrane* which you have cut, whilst the *Child* is *asleep*, anoint the two *Edges* with a *cooling Cerate*. You may likewise introduce between the *Eye* and the *Eye-lid* a *Plate of Lead*, in the Form of an *artificial Eye*, having in its *Middle* a *small Tongue*, which may hinder the *Touching* of the *Eye-lids*. Care must be had to bathe the *Eye* and the *Lids*, *three Times a Day*, with a *Collyrium* of *Rose* and *Plantain Waters* in *equal Parts*, with a little *prepared Tutty* dissolved in them.

If the *Eye-lids* are joined to the *Globe* of the *Eye*, the *Separation* must be made with a *very fine Bistoury*, having a *Button* at its *End*, to prevent its *Point's* hurting the *Eye*, or the *Eye-lid*, whilst the *Separation* is performing; raise the *Eye-lid* with your *Fingers*, afterwards introduce your *Bistoury* between the *Globe* and the *Parts united*, cut the *Adherence*, and take care not to cut more on the *Side* of the *Globe* than of the *Eye-lid*. As soon as you have made the *Separation*, lay in, between the *Globe* and the *Eye-lid*, a *Plate of Lead*,
without

without the *small Tongue*, in the Form of an *artificial Eye*.

THE *Eye* must be *washed*, *three* or *four* Times a *Day*, with the above prescribed *Collyrium*; the *leaden Plate* must be first *taken out*, and, after the *Eye* is *washed*, it must be *laid in* again. This must be *continued*, till both *Wounds* *cicatrise*.

CHAP. XVIII.

Of the Hydatides, or Phlyctena's of the Eye-lids and the Conjunctiva.

THERE comes sometimes on the *Edge* of the *Cartilages* of the *Eye-lids*, or on the *Conjunctiva*, an *Elevation*, like the *Bladders* which appear on the *Skin* after *Burns*. They are as big as a *Pea*, or a *Lentil*, are *filled* with a very *clear Water*, and have the *Name* of *Hydatides*, from the *Lymph* which they contain. Sometimes a *Serosity* is *extravasated*, between the *Conjunctiva* and the *Membrane* which covers it; it *separates* these *Membranes*, and, in the *Movement* of the *Eye*,
a Sort

A Sort of *Wrinkle* appears, which shews, that a *Serofity* stagnates between these *Membranes*, and produces this *Swelling*. This *Disease* is not at all dangerous; it is only a little troublesome, when it seizes only Part of the *Conjunctiva*, or the Edge of the *Eye-lid*. The surest Remedy is to prick it dexterously with the Point of a *Lancet*, and to lay it open, according to the longitudinal Direction of the Tumour; the little *Purse* immediately discharges its *Humour*, and the Cure, without any other Remedy, succeeds.

WHEN all the Circumference of the Globe is filled with *Water*, the *Conjunctiva* becomes red: In this Case, the Patient must be let Blood; when the *Serofity* seems to diminish, let him be purged, and apply to his Eye a *Collyrium* composed with a Dram of *Lapis Crollii* dissolved in half a Pint of common *Water*; or else you may make use of a *Wine*, in which red *Roses*, *Sage*, *Thyme*, and *Wormwood* have been boiled. *Lime-Water* is likewise very good. By these Means, this Collection of *Serofity* is soon dispersed.

C H A P. XIX.

Of fleshy Excrescences which grow between the Eye-lids and the Globe of the Eye.

T*WO Sorts of fleshy Excrescences grow between the Globe of the Eye and the Eye-lids. One is small, and seizes only the Caruncula Lacrimalis; the other is larger, and grows between the Eye-lid and the Globe.*

THE outward Surface of these Excrescences is uneven, and is spread over with several little Grains like those of a Mulberry, for which Reason they may be called Mulberries: They are sometimes red, and sometimes of a leaden Colour. They are sometimes produced by the Tears which, thro' their Acrimony, excoriate the Surface of the Places where these Excrescences take Root; whence arises a Sort of fleshy Fungus, sometimes great, and sometimes small.

THEY are likewise caused by a stagnating Blood, which either distends some Vessels, or corrodes them, whilst their outward

ward Parts are not ulcerated; so that there is a greater Accumulation of the Blood in these Parts, which tumefies their Coats, and generates an Excrecence.

THESE *Excrecences* are not dangerous if Care be had to remedy them in Time. I use two Methods to remove them: First, I apply the *Lapis Infernalis*, when their Situation admits; at the same Time I take great care not to touch any Part of the Eye, but the *Excrecence* only.

MY second Method is, to pass a Needle threaded with Silk to raise them, and so extirpate them with a pair of strait Scissars, or with a Lancet. When they are extirpated, let Medicines, gently consuming, be applied to the Wound; such is a Powder made of *Allum*, one Part, and *Sugar-Candy*, eight Parts. Lay of this Powder, about the Bigness of a Lentil Morning and Evening, to the Root of the *Excrecence*.

CHAP. XX.

*Of Abscesses formed between the Globe
of the Eye and the Orbit.*

WE find *two Sorts of Gatherings* between the *Globe* of the *Eye* and the *Orbit*, viz. an *Abscess* subsequent to an *Inflammation* of that *Part*, and to a *Drain* of *Humours* on the *Fat* which incloses the *Globe*. In this *Chapter*, I shall treat of the *Abscess* which is distinguished by these *Signs*, a *Swelling*, *Pain*, and *Redness* of the *Globe*.

IF the *Abscess* lies *behind* the *Globe*, or on the *Side* of the *Globe*, the *Matter*, which forms it, will *thrust* the *Globe* towards the *Side* opposite to the *Gathering*.

WHEN the *Inflammation* turns to an *Abscess*, a *Fever* supervenes, with *Want* of *Rest*, a *painful Pulsation* in the *Part* where the *Matter* is forming, together with a *violent Pain* in the *Head*.

IN *Abscesses* of the *Bottom* of the *Orbit*, when the *Pus* is very *redundant*, it extends the *Globe* of the *Eye* *outwards*, and over-
stretches

stretches the Optick Nerve, which the Loss of Sight often follows.

WHEN this *Disease* is in its *Beginning*, it creates a *Pain* in the *Orbit*, and the *Globe* of the *Eye* appears to *jet outwards*: The *Patient* must *immediately* be *confined* to an *exact Regimen*, and take nothing but *Broths* and *Tisane*; he must be *let Blood*, agreeable to his *Plethora*, for, in this *Disease*, the *Blood* must not be *spared*. *Collyriums* must be laid to the *Eye*, that can *discuss* and *prevent* the *too great Afflux* of the *Matter*, which is forming to an *Abscess*. Let some *Melilot Flowers* and some *Linseed* be *boiled* in *Fennel* and *Plantain Waters*, with which the *Inside* of the *Eye* and the *upper Part* of the *Eye-lids* must be *bathed* from *Time* to *Time*; let a *Compress*, wetted in the *same Water*, be laid to the *Eye*. If the *Inflammation* seems to *degenerate* to an *Abscess*, *beat* the *White* of an *Egg*, and *mix* it with the *Pulp* of a *roasted Apple*; lay it *hot* to the *Eye*, without *pressing* the *Eye*. As soon as the *Pus* is formed, the *Abscess* must be *opened*, for, the *longer* it is *deserr'd*, the *more* the *Matter* *increases*, and will the *sooner* *foul* the *adjacent Bones*.

Find

Find out, where the *Pus* lies; then let the *Part*, which contains the *Pus*, be opened with a *Lancet*, according to the *Direction* of the *Fibres* of the *Orbicular Muscle*. When the *Aperture* is made, and the *Matter* is discharged, lay in a *Tent* of prepared *Spunge*, and afterwards syringe it, Morning and Evening, with a *Tincture* of *Aloes*, and put in a *Tent* of *Wax*, till the *Ulcer* be intirely mundified, and fit to be healed.

C H A P. XXI.

of Collections of Humours formed behind the Globe of the Eye.

BESIDES the precedent Collections of *Pus* or *Matter* behind the *Globe* of the *Eye*, there are others which make it jet outwards, for often a great Quantity of thick viscid Humours, or of Serosity, is filtrated into the *Fat* which lies behind the *Globe*, tumefies the same, and thrusts out the *Globe*, in the same Manner as in an *Abscess*.

I SHALL

I SHALL relate three Observations of this *Disease*, which is very rare, that the *Experience*, I have had in the *Cure* of it, may be serviceable to others, in the like Cases.

THE first Observation is of one Mr. Le Brun, a Merchant, living at the Sign of the *Dolphin* in *St. Dennis's Street*: The *Fat* behind the *Globe*, together with the *Glandula Lacrimalis*, was tumefied by a viscous Humour. The *Globe* was extended outwards, at least the Breadth of three Lines or fourth Part of an Inch; several Surgeons proposed the *Extirpation* of the *Glandula*, in Hopes the *Eye* would return in; by the *Suppuration* which would ensue, and that the *Swelling* of the *Fat* would be thereby abated. I differed in Opinion, lest the *Disorder*, which seemed to me somewhat *Scrophulous*, might turn to a *Cancer*, had the *Operation* been performed. I cured him perfectly: He took, for three Months, *Æthiops Mineral*, after the Manner which I have set down, in the Chapter that treats of *Scrophulous Ophthalmies*.

My second Observation was of a young Man who came from *St. Germain en Laye*

to Paris: The *Globe* of his *Eye* was *inflamed* with a *Flux* of *Tears*, it *jetted* very much *out*; the *Eye-lids*, being *press'd* by the *Globe* against the *Edges* of the *Orbit*, *swelled*; the *upper* appeared of a *livid Colour*, and seemed, as it were, to *tend* to a *Gangrene*. I was called to *see* him, along with the *Duke* of *Dantin's Surgeon*: This young *Man* told us, his *Disease* was caused by a *Stroke* of *Light* from the *Sun*; at first, he *felt great Pains* in the *Bottom* of his *Eye*; and that, after these *Pains*, he was *reduced* to his *present miserable Condition*. At first, I thought there might be an *Abscess* *behind* the *Eye*, or that the *Fat*, which *incloses* the *Globe*, was *tumefied* by a *Derivation* of some *viscous Matter*. I gave my *Opinion*, if there was an *Abscess*, that a *Lancet* should be introduced *across* the *Orbicular Muscle* to the *Bottom* of the *Orbit*, and so come at the *Matter* which *surrounded* the *Globe*. But, to avoid performing this *Operation* without an *absolute Necessity*, I was *resolved* to *assure* myself, whether the *Disease* was not produced by some *viscous Humour*.

FOR which Reason, I order'd him to take, in the *Evening*, eight Grains of *Mercurius Dulcis*, and to be purged next Morning, with a *Medicine* made of *Manna*, *Senna*, and *Jalap*. The *Evening* before the *Purge*, I bled him in the *Throat*. As I found he was eased by the *Purge*, I continued every other Day the *Purge* and *Mercury*; and thus he was cured in a short Time of a *Disease*, in which the *Loss* of *Sight*, and of the whole *Eye*, was equally to be feared.

MY third Observation was of a *Farm-er's Wife* from *Damartin*, whom I had attended, some Time before, at *Paris*; I had cured her of a *Collection* of viscous *Humours*, which had tumefied the *Fat* behind the *Globe* of the *Eye*, and had thrust it outwards. This *Disease* was accompanied with cruel *Pains*, and with *Want* of *Sleep*; altho' I had appeased these *Pains*, by proper *Remedies*, still this *Eye* remained more prominent than the other. Three Years after I was sent for to her at *Lagny Le See*, where I found a *Physician* of *Meaux*, and a *Surgeon* of *Damartin*: When I had examined the *Patient*, I found the *Globe* of

her *Eye* very much *extended outwards*, and its *Membranes tumefied*. The *Body* of the *Eye* was of a *livid Colour*, and ready to turn to a *Gangrene*. She had a *malignant Fever*, with *red Spots* over her *Body*, and *great Pains* in her *Head*. I was of *Opinion*, that she would be in *Danger* of *Dying*, if the *Globe* of her *Eye* was not *taken out*; and that the *Operation* of *extirpating* the *Globe* would be followed by an *Evacuation*, which would *relieve* the *Head*. I *asserted*, that, *towards* the *Time* the *Wound* *suppurated*, the *Fever* and all other *Symptoms* would *go off*. As the *Physician* and *Surgeon* agreed with me, I performed the *Operation* immediately, and *extirpated* the *Eye*, as far in as I could, and as near the *Place* where the *Optick Nerve* is *joined* to the *Globe*. Afterwards I *dressed* it with a *defensive Collyrium* made of both the *White* and *Yolk* of an *Egg*, and *Oil* of *Roses*; I applied to the *Eye* a *Compress*, wetted in this *Remedy*.

ABOUT the *fourth* or *fifth Day* after the *Operation*, the *Fever* and other *Symptoms* went off, and she was *cured*, about the *twentieth Day* after the *Operation*, by using

the

the *Water* of the *Lapis Divinus*, with which I ordered her to bathe her *Eye*, three Times a Day.

C H A P. XXII.

An Account of the Operation of a remarkable Tumour in the Orbit.

IN the Year 1718, I cured a young Girl from Gonesse, about twelve Years old, of a very particular Tumour, of which the following Observation gives a full Account.

THIS Tumour took its Rise, at the lower Part of the Orbit under the Globe of the Eye; it turned the Pupil towards the Top of the upper Eye-lid, and extended the lower Eye-lid an Inch, or more, outwards. It likewise reached down on the Cheek, the Breadth of an Inch.

M. Mery, first Surgeon of Hotel Dieu, M. Carrerre, Surgeon to the Right Honorable the Dutchess Dowager of Orleans, and some others went along with me.

I MADE an *Incision* in the *Skin* and the *Orbicular Muscle*, in the Form of a *Crescent reversed*, the *Length* of the *Incision* was *proportioned* to the *Extent* of the *Tumour*; afterwards, with an *Errhine*, I *prick-*
ed the *Tumour*, in order to *raise* it; then, with a *Bistoury*, I *separated* the same from the *Parts* to which it *adhered*; these *Parts* were the *Orbicular Muscle*, and the *Membrane* common to the *Eye* and to the *lower Eye-lid*. When the *Tumour* was *separated*, with a pair of *strait Scissars*, I cut the *Root* of it; this *Root* was *hard* and *stiff*, like *strong Leather*. Afterwards I *dressed* the *Wound* with a *Digestive*, and, in *thirty Days*, it was *perfectly cured*. The *Eye* and the *Pupil* returned to their *natural Situation*, and the *Patient* sees with this *Eye*, as well as with the *other*.

It must be *observed* this *Tumour* had *three Cavities*: That, *next* to the *Skin*, contained a *purulent Matter* *liquid* enough; the *second* was *filled* with a *Matter* more *tenacious*, and somewhat like *Mortar*; the *third* was *filled* with a *Matter* somewhat like the *White* of an *Egg*.

BEFORE I performed the *Operation*, I perceived I had two *Inconveniencies* to avoid, which might have hindered its Success: The first was to avoid the Cutting of the *Membrane* common to the *Eye* and to the *Eye-lid*, for, had this *Membrane* been cut, the *Tears*, which flow continually into the *Eye*, would have fell into the *Wound*, and so would have obstructed its Closing.

THE second Danger was the Cutting of the common *Channel*, which conveys the *Tears* into the *Lacrimonal Bag*; for, instead of passing through the *Nose*, they would have ouzed into the *Wound*, and hindered its Cure.

C H A P. XXIII.

Of Excrescences of Flesh on the Globe of the Eye.

THESE Excrescences of *Flesh*, which grow on the *Globe* of the *Eye*, are variously prominent, in Proportion to the Difference of their Size. They are either the Result of some *Strokes*, or *Wounds*, re-

ceived in the *Eye*, or they are *spontaneously* produced by the *Rupture* of some *Blood-vessels*. I have *seen* an *Excrescence*, as big as a *Pea*, that was caused by a *Ball* shot out of a *Fusil*: It had *struck* the *Eye* on the *Side* of the *little Angle*, and *penetrated* into the *Globe*, beyond the *Place* which is usually *pierced*, in the *Operation* of the *Cataract*. My *Opinion* was, that, as the *Wound* *cicatrised*, it would serve as a *Ligature*, and *choak* the *Excrescence*, which would *decay* of *itself*: It happened accordingly, towards the *thirty-fifth Day*.

EXCRESCENCES appear sometimes on the *Cornea Transparent*. Some *Authors* pretend to *destroy* them with *Corrosive Sublimate*; for my Part, I perform the *same Operation* which shall be *proposed* for the *Cure* of the *Staphiloma*; afterwards, every *Morning*, I apply *Sea Salt* to them, about the *Bigness* of a *Lentil* at a *Time*, and so *consume* them *intirely*.

I HAVE *seen* an *Invalid Soldier*, who had a *fleshy Excrescence* in his *Eye*, an *Inch* and a *half* long: It took its *Rise*, towards that *Part* of the *Globe*, where the *fleshy Part* of the *Musculus Abductor* terminates;
the

the Size of it was so considerable, as to force the Globe of the Eye upwards, and the lower Eye-lid, to which it adhered, outwards. The Pressure of this Tumour on the Eye, and the Distention it made in the Eye-lids, created violent Pains in his Head, with Want of Sleep.

AFTER I had examined this Excrecence, which appeared to me very hard, and like a Ficus, I thought it might be taken off; but, for the perfect Cure of it, I judged it necessary to extirpate the Globe of the Eye, at the same Time; which Operation I performed, in the Presence of M. Carrerre, Surgeon to her Right Honourable Madame, and of M. Marsel, another Surgeon. I passed a threaded Needle into the Tumour, by which I raised it; afterwards I cut it, as near the Eye as possible. There ensued an Hemorrhagy, which was stopp'd by a Stiptick made of Cyprus Vitriol dissolved in common Water. The second Day after the precedent Operation, I ran my Needle threaded with Silk into the Globe, in order to bring away the Root of the Tumour. I first separated the Tumour from the lower Eye-lid, and then extirpated it, together

together with the *Globe* of the *Eye*; a *second*, but not violent, *Hemorrhagy* followed; the *Patient* was cured, in a *short Time*, and was rid of either *Head-ach*, or *Want of Sleep*.

I PERFORMED another *Operation* on an old *Woman* of *four score Years*; she lived at *St. James's Gate*; her *Eye* was *cancerous*, in its *upper Part*; at the *Place* of the *Cornea Transparent*, there grew a *Fungus*, which, by its *Elevation*, hindered the *Closing* of the *Eye-lids*. I *extirpated* it, as the precedent *Excrescence*; but, as far in as possible, towards the *Place* where the *Globe* of the *Eye* is joined with the *Optick Nerve*. This *Woman*, notwithstanding her great *Age*, was cured, in a *short Time*.

C H A P. XXIV.

Of the Nail or Pterygion.

ALTHO' the *Word*, *Pterygion* or *Nail*, is usually designed to signify a *fleshy*, or *fat-like Excrescence*, which takes its *Origin*, at the great *Angle* of the *Eye*, between the two *Coats* of the *Blades* of the *Conjunctiva*, and proceeds sometimes to the

the *Pupil*, and sometimes *beyond* it ; it is, however, very often only a *Quantity of Blood-vessels*, which, as they are filled with a *thick Blood*, form a Sort of *Membrane*. It must likewise be noticed, that the *Nail* does not always take its Origin from the *great Angle* ; it very often rises from the *little Angle*, and from the *upper* and *lower Parts* of the *Globe* ; it sometimes intirely covers both the *exterior* and *anterior Parts* of the *Globe*. When the *Nail* is in its *Beginning*, and is attended with an *Inflammation* of that *Part* of the *Eye* which it seizes, it may be cured, without an *Operation*, by Remedies which will mitigate the *Inflammation*, provided they be not too violent, such as some Authors prescribe. I make Use, with good Success, of the *Lapis Divinus*, or that of *Crollius*, dissolved in *common Water* ; if these Remedies do not prevail, the following *Operation* must be performed : The *Patient* must be set on a Cushion on the *Ground* ; let the *Operator*, seated behind him, hold him between his *Legs*, turning the *Patient's Head* backwards on his *left Thigh*, if it be the *right Eye*. When *both* are thus placed,

let

let him perform the *Operation*, in the following Manner: He must pass a *crooked Needle*, threaded with *Silk*, under the *Vessels* that form the *Nail*, in such a Manner, that the *Thread* may secure and inclose all these *Vessels*. Let him then raise the *Silk*, and tie both its *Ends*, in a hard double Knot, on the *Middle* of the Body of the *Nail*; so that the *Thread* may not slip, when one of the *Extremities* of the *Nail* is cut. Let him draw the *two Ends* of the *Silk*, to raise the *Nail* gently, by its *Middle*. Then, with a *Lancet*, he must cut the *Membrane*, which covers the *Vessels* the whole Length of the *Nail*, both above and below. Afterwards, he must pass *one Branch* of a Pair of fine *strait Scissars* between the Body of the *Nail* and the *Conjunctiva*; he must likewise pass the *other Branch* of the same *Scissars* above, at the Place where the *Nail* is joined to the *Caruncula Lacrimalis*; with one Nip of the *Scissars*, he must cut all these *Vessels*; afterwards he must raise, with the *Silk*, what he has cut, and turn it out on the *opposite Side*, in order to dissect and sever, with a *Lancet*, all its *Insertions* with the *Cornea Transparent*.

rent. The *Eye* must be dressed the four first Days with *Brandy* and *Water*. To cicatrise the Wound, let a *Dissolution* of the *Lapis Divinus* in common *Water* be used. If the *Nail* covers all the Circumference of the *Eye*, it must be divided into four *Parts*, and only a *Quarter* must be taken off, at a Time, by the *Needle*, which can secure no more at once: The *Operation* must be performed in the fore-mentioned Manner, and must be repeated, till all the *Vessels*, which lie on the exterior Surface of the *Eye*, are cut; the Dressing is the same. If the *Nail* is in the *left Eye*, when the *Needle* is run thro', and the *Nail* is tied, the *Patient* must be raised, and placed in a Chair, to finish the *Operation*; which could not be done, did the *Patient* remain in the same Posture, for then he would not lie to the *Operator's Hand*, unless he be an expert *Ambidexter*; if the *Nail* is formed by *Fat*, the *Silk*, which ties it, must be drawn very gently, to prevent the *Fat's* being cut thro' the *Middle*.

C H A P. XXV.

Of Squint Eyes.

AUTHORS differ in their Opinions, as to *squint-eyed People*. Some pretend, this *Deformity* is a Defect of the *Cornea Transparent*, which is too *convex*, or placed *obliquely*. Others say, the Fault is in the *Cristalline*. But they are both mistaken, for the Defect is in the *Muscles*, as I shall make appear.

WHEN a Person looks at an *Object*, and does not turn his *Eye* towards it, he is said to *squint*. Persons, thus affected, *squint* sometimes with one *Eye*, and sometimes with the other; sometimes both *Eyes* seem to *squint* together. Some *squint* very little, when the *Object* is near, and more, when it is at a great Distance. Some *squint* with one *Eye*, when near the *Object*, and with the other, when farther from the *Object*. When the *Eye*, that does not *squint*, is shut, the *Eye*, that *squinted*, looks strait; then, if the *Eye-lid* be opened, the *Eye*, that looked strait before, is found to *squint*.

THIS

THIS different *Inspection* of *squint Eyes* demonstrates a *Disparity* of *Movement* in one of the *strait Muscles* of the *Eye*, the which is produced by the unequal *Influx* of the *Animal Spirits* in all these *Muscles*: This regards only those who *squint* from their *Childhood*. This *Disease* may happen to Persons of *any Age*; but, in this *Case*, it commonly proceeds from a *Palsy* in one of the *strait Muscles* of the *Eye*. Persons, thus affected, see two or three *Objects*, and sometimes more, when they look but at one; these People are generally said to *see double*. This Accident happens, for this Reason, because the two *Pupils* are not in a *parallel Line*; so that the *Rays* of *Light*, reflected from an *Object*, fall, in one *Eye*, on a *Fibre*, and, in the other *Eye*, on another *Fibre*, which does not meet in the same Point, from whence the first takes its Rise. As the *Impression*, made by the *Light* in both *Eyes*, affects different *Fibres*, which do not flow from the same Point, a double or triple *Sensation* is transmitted to the *common Sensory*; for which Reason, a *Multiplicity* of *Objects* is seen.

To explain this more amply: *Vision* is performed by Means of the *nervous Fibres*, which are distributed to all the *Parts* of the *inner Cavity* of the two *Globes* of the *Eyes*; and these *Fibres* coincide, in the same Point of the *Brain* whence they rise; the *Fibres*, on the Side of the *great Angle* in one *Eye*, correspond with these on the Side of the *great Angle* in the other *Eye*. When they equally receive the *Light* reflected from an *Object*, a single *Sensation* only follows, in the *Place* of their *Origin*, for which Reason, there is but one *Object* seen; but, as the *Pupil* of the *Eye*, which *squints*, is not in a *parallel Line* with the other, it happens, as I just observed, that some *Fibres* in one *Eye* are moved by the *Light*, whilst, in the other *Eye*, the *Light* makes its *Impression* on *Fibres*, which do not correspond with the former; hence follows a *Confusion* in *Vision*. To make an *Experiment* of it, let a Person press, with his *Finger*, one of his *Eye-lids*, and force down the *Globe* of that *Eye* somewhat lower than the other; then, the *Pupils* not lying in a *parallel Line*, or of an
equal

equal Height, the Person *sees double*, for the foregoing Reason. All the *Difference*, between Persons who *squint* from their *Childhood*, and those who *squint* in a *more advanced Age*, consists in this: The first do not *see double*, as the latter do. In the first, when the well *Eye* is shut, the *Eye*, that *squints*, turns equally of all Sides: But, in the latter, when the good *Eye* is shut, the other *Eye* cannot be brought to the *Side* opposite to that, towards which the *Pupil* is turned: This shews, that this Defect, in *Children*, is caused by an unequal *Influx* of the *Animal Spirits*, either in the *Adducent* or *Abducent Muscles* of the *Eyes*, which makes the *Globe* turn of one *Side*. But, in grown Persons, when one of the *Muscles* becomes *paralytick*, the *Eye* remains as immoveable towards one *Side*, by the *Contraction* of the *Antagonist Muscle*, neither can the *Eye* move itself towards the *Part* opposite to that which is relaxed.

HAVING thus distinguished the *Difference* that occurs in this *Disease*, when from the *Infancy*, and of the same, when it happens in a *more mature Age*: We must

now propose its *proper Remedies*. I shall begin by the *Cure of Children*: It consists in settling the regular *Course* of the *Animal Spirits* in those *Muscles*, to which the following Method will be highly conducive.

LET the *Child* sit before a *Looking-glass*, and, when he is thus seated, make him look directly at his *Face* in the *Glass*, so that each of his *Eyes* may look precisely at the *Pupil* of that *Eye* which corresponds with it in the *Glass*: By making him perform this *Visual Exercise* Morning and Evening, for a *Quarter* of an Hour, the *Sight*, at length, becomes *strait*; besides, this gets him to read very small *Writing*, or to work at fine *Work*, which requires a great Application of the *Sight*. Care must be had, when *Children* look at any *Object*, that they do not lay it *sideways*; for, whilst the *Organs* are tender, they must be accustomed to *look strait*. Whilst these *Exercises* are performing, *spirituous Remedies* must be applied to the *Eye*, that they may animate the *Spirits* in the *Nervous Fibres*, and invigorate the relaxed *Muscle* to perform its proper *Action*. The *Queen of Hungary's Water*, *Fioraventini's Balsam*, and
such

such *Remedies* may be applied with *Success*; the *Forehead*, the *Temples*, and the upper Part of the *Eye-lids* must be rubbed with them, three Times a Day.

As to *Barnicles*, which have been long in Use; when they are put on *Children*, it commonly happens, that they only look thro' the *Hole* of one of these *Barnicles*, whilst the other *Eye* remains askew; for which Reason, I have invented a Kind of *Nose*, like that of a *Mask*: It covers Part of the *Eye* that *squints*, or of both *Eyes*, when they both *squint*; it must reach no farther than the *Pupils*, which must be left quite uncovered; we are sometimes obliged to cover intirely the *strait-looking Eye*, in order to redress the *squint Eye*, so that, by *looking singly*, it may be habituated to *look strait*.

IN Persons advanced in *Years*, this *Indisposition* may be caused by *getting Cold* in the *Eyes*, or in the *Head*, or by a *Distillation* of *Humours*, which are discharged on the *Muscles* of the *Eye*; sometimes a *Rheumatism*, in these *Parts*, produces the same *Effect*.

THIS *Disease* is cured by *Bleedings*, *Purges*, and sometimes by an *Emetick*; the *Steam* of *hot Coffee*, and of *Spirit of Wine*, must be applied to the *Eye*; a *Decoction* of *Eye-bright* and *Sassafras* must likewise be drunk. All *Remedies*, proper for the *Palsy*, are serviceable in this *Case*: Such are the *hot Mineral Waters*, &c.

THIS *Indisposition* is sometimes owing to a *Heat* of the *Viscera*, or to *Vapours* conveyed to the *Head*; then we are obliged to *bleed* in the *Foot*, to prescribe *cooling Drinks*, the *House-baths*, and sometimes the *cooling Mineral Waters*. In this *Case*, the *Advice* of a *Physician* is requisite.

The End of the First Part.

The



The Second Part.

OF THE DISEASES

Incident to the

GLOBE of the EYE.

CHAP. I.

*Of the Preternatural Size of the
Globe of the Eye.*



IN the *First Part*, I treated of those *Diseases*, in which the *Eye* jets out of the *Orbit*, whilst the Size of the *Globe* is not at all increased.

I shall now treat of those *Diseases*, which attack its *component Parts*, and, *first*, of its *preternatural Size*.

I HAVE observed *two* Sorts of *Diseases*, which increase the Size of the *Globe*. The *first*, when there is too great Plenty of the *Aqueous Humour* in the *Globe*, and may be looked upon, as a Sort of *Dropfy* of the *Globe*. The *second* is, when the *Membranes* of the *Globe* become thick, as it were fleshy, and afterwards *carcinomatous*; so that, the *Distention* of the *Globe* hindering it to lie in its *Orbit*, it bears outwards. I do not speak, here, of *Eyes naturally prominent*, but of these which become so *accidentally*.

As to the *first Cause*, which augments the Size of the *Globe*, it is *manifest*, if the *Channels*, destined to carry back the *Aqueous Humour*, or the *Pores*, thro' which it escapes, become obstructed, whilst the *Vessels*, which supply it, are in their *natural State*; it is manifest, I say, that the *Accumulation* of this *Humour* will certainly produce the *Distention* of the *Globe*.

THO' we are assured, by *Anatomical Experiments*, of the continual *Reproduction* of the *Aqueous Humour*, daily *Practice* removes all Room of Doubt: For, when we are obliged to make an *Incision* in the

the *Cornea Transparent*, either to discharge *Pus*, or draw out a *Cataract* seated in the *anterior Chamber*, there runs out, at the same Time, a great Quantity of the *Aqueous Humour*, by which the *Sight* is instantly *offusked*, and, the next Day, the same Quantity is found again; this could never happen, without a constant and speedy *Reproduction* of the said *Humour*.

As to the *second Cause*, which increases the Size of the *Globe*: It is known, that the *Membranes*, which compose it, are furnished with an infinite Number of very small *arterial Vessels*, which convey the *Blood* for the *Nourishment* of the said *Membranes*, and with *Veins*, which carry back the superfluous *Part* of the *Blood*; so that, when the *Blood* is too thick to enter these *Vessels*, which should carry it back, it stagnates in the *Membranes*, becomes more viscid, and renders them, as it were, fleshy.

If the *Blood*, by *stagnating*, grows thick, the continual *Separation* of the *Lymph*, necessary for the *Nourishment* of the *transparent Bodies* of the *Eye*, must equally contribute to the *Thickening* of the same; for,

when the *Blood* is deprived of these fine fluid *Parts*, it becomes more tenacious, and, consequently, more capable of producing the forementioned *Effect*.

IF this *Disease* is caused by the *Aqueous Humour*, the *Eyes* seem to start out of the *Orbit*, and can scarce be covered by the *Eye-lids*. Both *Eyes* are commonly attacked together.

WHEN this *Disease* is occasioned by the *Membranes* becoming, as it were, fleshy, for the most Part, one *Eye* only suffers: A *Pain*, with *Sense of Weight*, is felt in the *Eye*, which grows gradually bigger, and sometimes is extended to a Size three or four Times greater than the natural one.

THIS *Disease* differs from that Sort of *Inflammation*, called *Chemosis*; for, in the latter, the *Blood* is extravasated between the *Membranes* of the *Globe*, where it turns to *Pus*. We shall treat of that *Disease*, in the *Sequel*; but, in the present *Disease*, the *Blood* is viscid, and not extravasated, but is infiltrated into the *Membranes*, and seldom comes to a *Suppuration*. From the *Beginning*, in the *Chemosis*, there

Is a violent *Inflammation* with acute *Pain* ; whereas, in the present *Disease*, the *Inflammation* is light, in the *Beginning*, as well as the *Pain*, which only increases, as the *Disease* augments. When the *preternatural Size* of the *Globe* of the *Eye* is caused by the *Stagnation* of the *Aqueous Humour*, it is not dangerous, it only fatigues the *Eye-lids* and the *Sight* ; but, when the *Thickening* of the *Membranes* produces this *Disease*, it is very dangerous, it destroys not only the *Sight*, but, very often, the *Patient's Life* ; for this *Disease* is like a *Cancer* in the *Membranes* of the *Eye*, and, altho' it may not come to be an *open Cancer*, as these in other *Parts* of the *Body*, yet, in *Process* of *Time*, it creates violent *Pains*, with a *Fever*, which soon put an *End* to the *Patient's Life*. As these *two Diseases* proceed from different *Causes* , they require different *Cures* : When it depends on the *Aqueous Humour*, make Use of *Remedies* that can increase and invigorate the *Circulation* of the *Lymph*, and open the obstructed *Channels*, for which Reason *Attenuants*, *Purgatives*, and *Sudorifick Tisannes* are serviceable.

BUT

BUT, when the *Membranes* of the *Globe* become, as it were, fleshy, and so produce this *Disease*, the *Patient* must be confined to an exact *Regimen*, as in a *Cancer*; his *Diet* must sweeten, humect, and subtilise the *Blood*; he must take *Broths* made of *Crabs*, *wild Succory*, *Chervil*, and Plants of that Sort; he must be let *Blood* and *purged*, let him likewise use the *House-baths*.

ANODYNE resolving *Medicines* must be applied to the *Eye*. These I have prescribed in the *Chapter* which treats of the *Cancer* of the *Eye-lids*, to which I refer the *Reader*.

THE excessive *Distention* of the *Globe* is sometimes so painful, that we are obliged to extirpate the *Eye*; then the *Operation* must be performed, as far in, and as near the *Optick Nerve* as possible. After the *Extirpation*, fleshy *Excrescences* often grow; at first, they take the Shape of the *Globe*, daily increase, and form a *fungous Excrescence*, which bears out of the *Orbit*. This obliges the *Patient* to undergo a *second Operation*. In this *Case*, I make use, with Success, of the *Water* mentioned in
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the *Chapter* which treats of the *Cancer* ;
this Water prevents its *Return*.

C H A P. II.

*Of Diseases proceeding from Strokes
received in the Eye.*

AS *Strokes*, received in the *Eye*, are more or less violent, the *Symptoms*, which follow them, are various. When I treat of *Cataracts*, I shall make mention of these which come by *Strokes* : I shall likewise treat of *Staphiloma's* owing to the same *Cause*. Here I design only to treat of the *Confusion* which a violent *Stroke* causes in the *Humours* of the *Eye*, when the *Eye* is not cut ; I shall likewise give an Account of the *Counter-blow* and *Concussion* it makes in the *Optick Nerve*. As some *Blood Vessels* are lacerated by the Force of the *Stroke*, they emit some *extravasated Blood* on the principal Parts of *Vision*, whereby the *Sight* is very much diminished.

WHEN a *Stroke* has caused an *Eccymosis*, and a *Confusion* in the *Humours* of the *Eye*, by the Rupture of some *Blood-Vessel*
in

in the *Uvea*, if you look through the *Hole* of the *Pupil*, you cannot distinguish any of the *Humours*, they all appear mixed with *Blood*; for which Reason, this *Disease* is called a *Confusion* of the *Humours* of the *Eye*.

To remedy this *Disease*, let the *Patient* be, out of Hand, let *Blood* several Times, to empty the *Vessels*, and to prevent a farther *Extravasation* of *Blood*; let a *Pidgeon* be let *Blood*, under the *Wing*; let some Drops of its *Blood* fall into the *Eye*, Morning and Evening, laying on a *Compress*, wetted in two Spoonfuls of *Wine* mixed with four Drops of the *Balsam* of the *Commander*. Every Time the *Patient* is dressed, let his *Eye* be, first, washed with a Spoonful of *Aqua Vulneraria*, and six Spoonfuls of common *Water* warmed. By these *Means*, the *extravasated Blood* will be dispersed, and the *Sight* restored, provided the *Bottom* of the *Eye* has not been damaged.

WHEN the *Eye* has received a violent *Stroke*, if nothing appears in its *Inside*, and the *Patient* can only see the *Light* of a red *Colour*, without distinguishing *Objects*,
it

it may be presumed that the Rupture of some *Blood-vessel*, at the *Bottom* of the *Eye*, causes these *Symptoms*. In this *Case*, we must endeavour to resolve the *Blood*, by the Method and Remedies above named. When the *extravasated Blood* begins to be dispersed, the *Patient* sees *Blue*, and afterwards *Objects* appear to him in their *natural State*. When the *Blood* seems to be altogether dispersed, no other Remedy is requisite, but these which can corroborate and restore the *natural Tone* of the *Parts* that had been damaged by the *Stroke*. In this *Case*, the distilled Water of *Camphire* will be very serviceable; it must be put in the *Eye*, three or four Times a Day.

SOMETIMES the *Stroke* has displaced the *Cristalline*, in its *Cavity*, so that the *Patients* see *Objects* winding like an *S*, or after some other irregular Manner: But no Remedies are efficacious enough to restore the *Eye* to its *natural State*.

C H A P. III.

Of the Ophthalmy in General.

AN *Ophthalmy* is an *Inflammation* or *Redness* of the *Conjunctiva*, sometimes attended with violent *Heat* and a *Flux* of *Tears*, sometimes without either *Heat* or *Tears*. This *Inflammation* sometimes extends itself to all the Parts of the *Globe*, and to all the Parts which encompass the *Globe*: Of all the *Diseases* incident to the *Globe* of the *Eye*, this is the most frequent, for it accompanies almost all the *Diseases* to which the *Eye* is subject.

THERE are various Sorts of *Ophthalmies*: Some are without Danger, and are easily cured; others are very dangerous, and difficult to cure. In this *Chapter*, I intend to treat of all the different Species of *Ophthalmies*, and to describe their *Origin*, in order to give a just Idea of this *Disease*, when it begins to appear.

As to the *Cause* of *Ophthalmies*, it is either *internal* or *external*: The *Blood* is the *Spring* of all *Ophthalmies* proceeding from an *inward Cause*, whether the Fault be in the

too great Redundancy, or in some acquired bad Quality; such are the *Thickness*, *Viscosity*, *Acrimony*, or too great *Rarefaction* of the *Blood*.

IF the Quantity of *Blood* be excessive, it will be carried, in too great Plenty, into the *minute Vessels* which are spread on the *Eye*, and so produce an *Ophthalmy*.

IF the *Blood* be too thick, as it is incessantly conveyed into the *most fine Vessels* of the *Eye*, its *Particles* being too heavy and large to pass into these *Vessels*, the *Circulation* in these Parts must be obstructed, and an *Inflammation* generated. When the *Blood* is too sharp, the *Serosity*, furnished by the *Glandula Lacrimalis*, will be of the same Nature, and by irritating the *Conjunctiva*, which it constantly humects, will create an *Ophthalmy*.

IN short, if the *Blood* be too much rarefied, as the *Rarefaction* affects the *fine delicate Vessels* of the *Eye*, it will produce the same *Disease*.

As to *external Causes*, it is evident, that whatever can violently irritate the *Conjunctiva* and the *Membrane* which covers it, or can make a *Separation* in the *Vessels* of these Parts, it will necessarily
cause

cause an *Ophthalmy*, as shall be shewn, in treating of each different Species of *Ophthalmy*, where we shall describe their *particular Signs*.

THIS *Disease* is sometimes *fatal*, on Account of the many *Symptoms* that attend it; it is often exasperated by improper Remedies which the *Patients* apply, when first attacked: This *Disease* is sometimes so violent that its *Progress* can hardly be stopped, or the *Sight* at all preserved, as we shall see in the particular Description of each *Ophthalmy*.

C H A P. IV.

The Division of the Ophthalmy.

THE *Ophthalmy* is generally divided into the *dry* and the *humid*: But I shall add some others, for I have observed different *Symptoms* in each particular Species, as will appear in the *Sequel*.

ARTICLE

ARTICLE I.

Of a Dry Ophthalmy.

THE *first* Sort of *Ophthalmy* is called the *Dry Ophthalmy*: It brings a *Redness* on the *Eye*, without *Tears*, or any *purulent Matter*.

IN this *Disease*, there is no *Swelling* of the *Eye-lid*, nor *Pain* in the *Eye*, or in the *Head*. It is caused by a thick *Blood* which stagnates only in some of the *Vessels* of the *Conjunctiva*, for, in this *Disease*, Part of the *White* of the *Eye* is *red*, and Part is not *red*.

ARTICLE II.

Of the Humid Ophthalmy.

THE *second* Species of *Ophthalmy* is called the *Humid Ophthalmy*, and is occasioned by a great Quantity of *Lacrimonial Lymph* which, as it passes continually over the *Globe* of the *Eye*, irritates the same thro' its *Acrimony*, inflames it and the inner Part of the *Eye-lids*; which are thereby swelled; it likewise often ul-

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cerates

cerates the *Cornea Transparent*. This *Disease* is attended with *shooting Pains* in the *Eye*: The *Patients* cannot look at the *Light*, without very vivid *Pains*. *Children* are subject to this *Disease*; so are *Oldmen*, in whom it becomes very obstinate, by Reason of the *natural Moisture* of their *Temperament*. When this *Disease* runs to a Length in *Children*, their *Lips* and *Nostrils* swell, and are covered with *Scabs* and *Pustules*, that sometimes spread over all their *Face*.

A R T I C L E III.

Of the Ophthalmy caused by a Defluxion from the Brain.

THERE is a *third* Sort of *Ophthalmy*, which excites an *Itching* in the *Eye*; a thick glutinous *Matter* ouzes out, and gums the *Eye-lids* together, in the *Night-time*. This kind of *Ophthalmy* is often caused by a *Defluxion* from the *Brain*, and, of all, is most easily cured.

ARTICLE IV.

Of the Ophthalmy attended with dry Film.

THERE is likewise a *fourth* Species of *Ophthalmy* somewhat like the *Dry*; the *Conjunctiva* is *red*, and the *Eye-lids* are smeared with *dry Film* like *gritty Flour*, Part of which falls on the *Globe* of the *Eye*, and the *Patient* thinks he has *Dirt* in it. This is very troublesome to him, and makes the *Conjunctiva* appear *red*.

ARTICLE V.

Of the Ophthalmy which seizes the Globe of the Eye towards the Angles.

THE *fifth* Species of *Ophthalmy* is, when the *Patient's Eyes* are *red* only towards the *Angles*, whilst the upper and lower Parts of the *Globe* are not at all affected; when the *Caruncla Lacrimalis* becomes inflamed, the *Vessels*, which pass under it, swell even to the *Cornea Transparent*. This *Disease* often changes to that called the *Nail*, of which I have already treated.

ARTICLE VI.

Of the Ophthalmy attended with Pimples on the Globe of the Eye.

THERE is a *sixth* Species of Ophthalmy, in which there is a Swelling of the *small Plexus's*, or *Bundles* of *Veins*, which are sent from the inner Surface of the *Eye-lids*, and terminate where the *Conjunctiva* is joined with the *Cornea Transparent*; there appears in that Place a *Pimple* as big as a *Lentil*. Sometimes the *Redness* is continued to the *Cornea*, and, at its Extremity, *whitish Pus* may be seen. It is evident, that the *productive Matter* of these *Pimples* ouzes through the Ends of the forefaid *Vessels*: This *Disease* can only be cured by piercing the *Pimple*, by dispersing the contained *Matter* with proper Remedies.

ARTI-

A R T I C L E VII.

Of the Ophthalmy, with little Abscesses, on the Cornea and the Conjunctiva.

IN this *seventh* Species of *Ophthalmy* all the *Conjunctiva* becomes red, with small *Abscesses*, seated partly on the *Cornea Trans-*
parent, and partly on the *Conjunctiva*. Sometimes there are five or six of them round the *Eye*; they are sometimes as big as a *Pin's Head*, and sometimes as big as a *Lentil*.

A R T I C L E VIII.

Of the Erysipelatous Ophthalmy.

THE *eighth* Species of *Ophthalmy* proceeds from an *Erysipelas*, or *St. Anthony's Fire*, which reddens the *Conjunctiva*, swells the *Eye-lids*, and causes violent *Pains* and *Heat* both in the *Eyes* and *Head*. The neighbouring Parts of the *Eyes*, as the *Temples*, the *Forehead*, and the *Nose*, are covered with *Scales* and *Scabs*, that leave, when they fall off, *Marks* for *Life*, resembling those which come by the *Small Pox*.

ARTICLE IX.

*Of the most dangerous Ophthalmy, called
Chemosis,*

THERE is a *ninth* Species of *Ophthalmy*, in which all the *Conjunctiva* is swelled to the Thickness of a *Finger's Breadth*; this makes the *Cornea Transparent* appear, as it were, sunk in a *Cavity*. This *Inflammation* is attended with violent *Pains* in the *Head*, and in the *Eye*, with *Heaviness* over the *Orbit*, and with *Want* of *Sleep*; there is likewise a *Fever*, *Pulsation*, &c. In this *Ophthalmy*, all the *Cornea Transparent* often comes away by *Suppuration*, which destroys the *anterior Chamber* of the *Eye*. The *Cicatrice*, subsequent to the *Suppuration*, hinders the *Cristalline* and *Vitreous Humours* from falling out, and, by that Means, the *intire Decay* of the *Globe* is prevented; sometimes both happen.

THIS Species of *Ophthalmy* is often the Result of a *Stroke* received in the *Eye*, or in the adjacent Parts. At other times it comes without any *external Cause* preceding the *Disease*. It may be caused by
a criti-

a critical Discharge, after a malignant or other Fever.

I HAVE seen a *Lady*, that got a *Pleurisy*, by riding a Journey in the *Rain*: As the *Country Physicians* had not ordered her to be let *Blood*, there supervened an *Ophthalmy* of the present Sort, upon which the *Pleurisy* abated; but, the *Fever* and *Inflammation* of the *Eye* still continuing, it soon turned to an *Abscess*. The other *Eye* was seized, about the twentieth Day, with the same violent *Symptoms*. When the *Patient* was in a Condition to be removed, she came to *Paris* to consult me. Having examined her *Eyes*, I found, the first, I mentioned, was intirely lost, and the other *Eye* was covered with a *Cicatrice*, which I took off by proper Remedies, so that she can now see enough to find her Way. These Remedies may be found in the *Chapter* which treats of *Cicatrices* remaining after *Abscesses*.

ARTICLE X.

Of the Venereal Ophthalmy.

THIS *tenth* Species of *Ophthalmy* has almost the same *Signs* with the precedent, with this *Difference* that the *Conjunctiva*, which is swelled, appears hard and fleshy. It begins thus: A great Quantity of *whitish Matter*, with a *yellowish Cast*, ouzes constantly thro' the *Eye*. This *Disease*, which proceeds from a *venereal Cause*, is very rare; yet I have seen several attacked with it. In most of them, this *Disease* appeared two Days after the Beginning of a *virulent Gonorrhœa*; the *Matter*, not running off by its usual Passages, was removed to the *Eye*, through which there flowed a like *Matter*, which stained the *Linnen*, in the same Manner as when it pass'd through the usual Channels.

ARTICLE XI.

Of the Ophthalmy of the Choroides.

THERE is an *eleventh* Species of *Ophthalmy*, in which the inner Parts of the *Eye* are inflamed, I mean the *Choroides*

roides together with the *Uvea*. In this *Disease*, the *Conjunctiva* is but lightly inflamed; it is attended with a *Flux* of *Tears*: The Looking at the *Light* is painful to the *Patient*, who feels *acute Pains* towards the Top of his *Head* and *Temples*; the *Pupil* is also contracted.

A R T I C L E XII.

Of the Ophthalmy caused by Dirt lodged in the Eyes.

THE *twelfth* Sort of *Ophthalmy* is caused by *Dirt* or such Things that enter the *Eye*, and produce an *Ophthalmy* proportioned to their *Size* and *Inequalities*; they stick to the *White* of the *Eye*, or to the *Cornea Transparent*, or to the *Inside* of the *Eye-lids*.

A R T I C L E XIII.

Of the Ophthalmy from Strokes on the Eye.

THE *thirteenth* Sort of *Ophthalmy* is caused by some *Stroke*; the *Violence* of the *Stroke*, or the *Shape* of the *Instrument*, makes all the *Variation* found in this *Disease*;

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Disease; all which we have already explained, when we treated of the *Accidents* subsequent to *Strokes* on the *Eye*.

A R T I C L E XIV.

Of the Ophthalmy from the Rupture of the Vessels spread on the Conjunctiva.

IN this *fourteenth* Species of *Ophthalmy*, the *Eye* grows very *red*, though the *Patient* feels no *Pain*, neither is the *Light* uneasy to him: It is caused by the *Rupture* of some *Blood-vessel* of the *Conjunctiva*; the *extravasated Blood* mines between the *Blades* of that *Membrane*.

C H A P. V.

Of the Prognostick of Ophthalmies.

ALTHO' we have already observed, that the *Prognostick* of an *Ophthalmy* is always dangerous, by Reason of the fatal *Accidents* which attend it; however, the *Symptoms* of all *Ophthalmies* are not alike to be feared, or accompanied with the same *Danger*. We shall, first, treat of those *Symptoms*, which are most to be dreaded; afterwards

afterwards, we shall mention these which are not attended with the same imminent Danger.

THE *Humid Ophthalmia* is dangerous either on Account of its *Duration*, or of its *frequent Returns*, or of the *Acrimony* of the *Lymph* that excoriates and ulcerates the *Cornea Transparent*; it likewise destroys Part of the *Sight*, by the *Cicatrices* which remain after the *Ulcers*.

THE *Erysipelatous Ophthalmia* is dangerous, by Reason of the violent *Pains* which it causes, and likewise of the considerable *Damage* it does to the *Sight*.

THE *Ophthalmia*, called *Chemosis*, is very fatal, by Reason of the *Pains* which follow it, and often the very Loss of *Sight*.

THE *Venereal Ophthalmia* is as dangerous, as the *Chemosis*.

THE *Ophthalmia*, which follows an *Inflammation* of the *Choroides* and the *Uvea*, is very dangerous; for it often destroys the *Sight*, or else generates a *membranous Cataract*.

THE *Ophthalmia* from *Strokes* on the *Eye* is more or less dangerous, according to

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to the *Parts* which are damaged by the
Stroke.

THE *Ophthalmy* subsequent to *Strokes* on the *Head*, by which the *Meninges* have been hurt, is a *Sign* of *Death*.

WHEN, in the Beginning of the *Small Pox*, the *Eyes* are as it were, filled with *Blood extravasated* out of the *Blood-vessels*, it is likewise a *mortal Sign*, for it denotes the *Blood* is carried with *Violence* to the *Head*.

As to the other Species of *Ophthalmies*, which we have described, it may be said in General, that they are not dangerous, being, for the most Part, free from any fatal *Symptoms*. A *Diarrhœa*, or *Flux* of the *lower Belly*, cures an *Ophthalmy*, according to *Hippocrates*.

CH A P. VI.

Of the Cure of Ophthalmies.

THE Description, I have given of the different Sorts of *Ophthalmies* evidently shews, that the common Division into a *Dry* and a *Humid* does not suffice,

suffice, in order to make a just Choice of Remedies proper for each different Species. It has been likewise observed, that the indiscreet Application of Remedies, instead of curing this *Disease*, has rather increased the same; for which Reason, I judged it necessary and useful to the *Publick*, to give a more ample *Account*, to prevent the mistaking and misapplying one Remedy for another; a good Remedy, ill applied, often renders an *Ophthalmy*, that was scarce uneasy, incurable. The Remedies, proper for each *Ophthalmy*, are *proposed*, in due Order; I design to treat, in a particular *Chapter*, of the *Symptoms* subsequent to the *Small Pox*.

IN order to cure all Sorts of *Ophthalmies*, the general Remedies must be employed, and chiefly *Bleeding*, to lessen the Quantity of *Blood*. Some *Cases* require *Purging*; in some others, it would be prejudicial. It is to be noticed that the *Spots*, the *Ulcers*, and certain *Abscesses* of the *Cornea Transparent*, attended with an *Inflammation* of the *Conjunctiva*, are more speedily cured by *Bleeding* of the *Eye*, than by any other Means. Notwithstanding, in some *Cases*,
it

it is not proper, as *Practice* evinces. This *Bleeding* of the *Eye* is performed, in different Manners: Some take a Bundle of *Beards* of *Oat-blades*, and make a Kind of *Brush*, with which they scrape the *Conjunctiva*, and so scarify it; others pass a covered *Lancet* between the *Globe* and the *Eye-lid*, and scarify the *Cornea* with it. Others glide a *crooked Needle* under the *varicous Vessels* which communicate with the *Spot*, *Ulcer*, or *Abscess*, and cut the *Vessels* which creep on the *Conjunctiva*. This last *Operation* is the surest and least painful.

A R T I C L E I.

Of the Cure of the Dry Ophthalmy.

IN the *Dry Ophthalmy*, for some Days, make use of a *Collyrium* made with *Rose* and *Plantain Waters*, of each two Ounces, in which twelve Grains of *prepared Tutty* are dissolved. If a Spoonful of *Spirit of Wine* be added, the *Collyrium* will be more efficacious; let the *inner Part* of the *Eye* be washed with it, three times a Day. At Night, lay on the *Eye* a *Compress* wetted in the following *Wine*; take of *Paul's Be-*
tony

tony and *Thyme*, of each a Pugil ; of *Province Roses*, two Pugils ; let them have two Boils in half a Pint of *Wine*. As this Species of *Ophthalmy* is not dangerous, it requires but few Remedies, and is cured by *Bleeding* alone, repeated according to the *Plethora* of the *Patient*.

A R T I C L E II.

Of the Cure of the Humid Ophthalmy.

THE *Humid Ophthalmy* is sometimes very hard to cure, it requires more Remedies than the precedent ; besides the *general*, repeated as the *Disease* requires, *Bleeding* in the *Neck*, and in the *Foot*, is often necessary.

At first, apply a *Collyrium* made with the distilled Waters of *Fennel*, *Eye-bright*, and *Plantain*, of each two Ounces, in which you must dissolve two Grains of *Salt of Saturn*. Sometimes a *Seton* in the *Neck* must be made ; a *Caustick* and *blistering Plaister* must be kept on, for some Time : As to *blistering Plaisters*, if they incommode the *Kidnies*, or *Bladder*, they must be laid aside, and other Means employed.

ployed. If the first *Collyrium*, which is designed only as a *Sweetener*, after some Days, does not succeed, let another be substituted, which, by *constringing* the *Pores*, will hinder the great *Afflux* of *Tears* to the *Eye*; for which Reason you may omit the *Salt* of *Saturn*, and dissolve, in the same Waters, half a Dram of the *white Troches* of *Rhasis*: When the *Flux* of *Humours* has ceased, if any *Ulcer* remains, as often happens, on the *Cornea Transparent*, then make use of a *Dissolution* of the *Lapis Divinus* in common Water. This Stone is made, with equal Parts, of *Allum*, *Salt-Petre*, and *Vitriol* of *Cyprus*, of each a Pound, and two Drams of *Camphire*: Put the three first in a *glazed earthen Pot* with a *close Cover*; you must have some *Rowlers* of *firm Paste* a Foot long, and half an Inch thick; then place the *Pot* under a *Chimney*, and surround it with *Charcoal*, till it comes above the Bottom of the *Pot*, half an Inch; then set Fire to it. As you see the *Materials* melt, stir them with a *long small Stick*; and, when you find that they are raised in the *Ebullition*, about three Fingers Breadth, let the Vessel be taken from the

the *Fire*, and throw in the *Camphire*, continuing to stir the Whole, till the *Camphire* is intirely dissolved; then cover the *Pot*, as quick as you can, luting its *Junctures* exactly with the foresaid *Paste*; leave it so, for the Space of twenty-four Hours; then break the *Pot*, and separate the *Stone*, which put into a *Glass Vessel* stopp'd very closely. The *Dose* is from twelve Grains to half a Dram, dissolved in half a Pint of common Water; you may add to the *Dissolution* two Drams of *Sugar-Candy*, with a Spoonful of *Brandy*.

WHEN the *Ulcer* is cicatrised, if this Remedy does not intirely remove the *Spot*, make use of the Powder of *Scuttle-fish Bone* and *Sugar-Candy* mixed together; drop, about the Bigness of a *Lentil* of this Powder every Morning, on the *Spot*: We must sometimes have Recourse to more powerful Remedies; such are *Oil of Linnen*, and the *Powders* mixed with *Allum*. Humid *Ophthalmies* are often attended with *Scrophulous Tumours*, as appears from the *Swelling* of the *Glands* about the *Neck*, In this *Case*, we must use Remedies that can eradicate the *Cause* of this *Disease*,
N which

which otherwise will destroy the *Eyes*, by the *Ulcers* and *Spots* which succeed it ; for which Reason, besides the foresaid Remedies, the following *Tisane* must be prepared : Take of *China* and *Burdock* Roots, of each sliced one Ounce ; boil them in five Pints of Water to half the Quantity ; add a Handful of *French Marygolds*, and some *Liquorice*. The *Patient* must drink, every *Day*, three half Pints of this *Tisane*, viz. two in the Morning, and one in the Afternoon, to be continued for a Month. Let him take thirty Grains of *Æthiops Mineral*, three Days successively, in which Time it will amount to ninety Grains. Let him be purged, the fourth Day, with a pretty brisk *Purge*, still taking care it be suited to the *Disease*, and the *Patient's Constitution*. Then let him rest four Days, without taking any *Æthiops* ; afterwards renew the Use of the *Æthiops*, for three Days, and let him be purged again, which must be continued, till he is perfectly cured. The *Dose* of the *Æthiops* must be increased by little and little to a Dram, for, when it is given in too small a Quantity, it has not its full Effect, nor does it

answer

answer the End expected from it. Regard must still be had to the *Patient's Age, Temperament, &c.*

A R T I C L E III.

Of the Cure of the Ophthalmies proceeding from a Defluxion.

THIS *third Species of Ophthalmy*, with an *ouzing of viscid Humour* that glews the *Eye-lids* together in the Night, requires a short Cure. After the general Remedies, the *Ointment of Tutty* must be used; every Night, about the Bigness of a *Lentil* of it, when the *Patient* goes to rest, must be put in the *Corner* of his *Eye* towards the *Nose*, so that it may enter into the *Eye*: The *Eye* must be washed with warm *Water* and *Brandy*, ten Parts of the first to one of the last. If the *Angles* of the *Eye-lids*, which are often ulcerated, do not cure with the *Ointment of Tutty*, a *Dissolution of Lapis Divinus* must be used.

ARTICLE IV.

Of the Cure of the Ophthalmy with Film.

THE *fourth* Species of *Ophthalmy*, after the general Remedies, is cured by the following *Collyrium* : Let *Salt Armoniac* and *Sugar of Saturn*, of each seven Grains, be dissolved in *Rose* and *Plantain Waters*, of each four Ounces, with which the *Eye* must be bathed three or four Times a Day.

ARTICLE V.

Of the Cure of the Ophthalmy which affects the Globe towards the Angles.

TO cure the *fifth* Species of *Ophthalmy*, make use of the following *Collyrium* : It is composed of *White Vitriol* and *Iris of Florence*, of each one Dram ; let it be infused in three or two Pints of Water, according as it is required stronger or weaker.

ARTICLE VI.

Of the Cure of the Ophthalmy attended with Pimples.

TO cure this *Ophthalmy*, make use of a *Dissolution* of the *Lapis Divinus* in common Water, when the *Pimples* lie only on the *Conjunctiva*; but, if they are spread on the *Cornea Transparent*, and *Pus* appears between the *Pellicles* of that *Membrane*, then Remedies, proper for *Abscesses* of the *Eye*, must be applied; they are set down, in the *Chapters* which treat of that *Disease*.

ARTICLE VII.

Of the Cure of the Ophthalmy attended with small Abscesses on the Cornea and the Conjunctiva.

TO cure this *seventh* Sort of *Ophthalmy*, you must apply to that Part of the *Eyes*, where the *Abscesses* are formed between the *Cornea Transparent* and the *Conjunctiva*, Remedies proper to open these *Abscesses*, and likewise to cicatrise them, for the *Inflammation* and *Violence* of the

Disease do not abate, till the *Matter* is discharged. First, then, apply the distilled Water of *Camphire* ; as soon as it begins to penetrate, make Use of a *Dissolution* of *Lapis Divinus* in common Water ; it will cleanse and cicatrise the *Ulcers*.

A R T I C L E VIII.

Of the Cure of the Erysipelatous Ophthalmy.

THE *eighth* Species of *Ophthalmy* is tedious and difficult to cure. At first, apply the distilled Water of *Elder-flowers*, with a tenth Part of *Brandy*, warm it, and bathe the *Eye* with it. You must likewise have Recourse to a *Seaton*, to *Bleeding* in the *Arm*, in the *Neck*, and in the *Foot* ; afterwards *Purging* and *Blisters*, if they seem necessary, must be employed.

A R T I C L E IX.

Of the Cure of the Ophthalmy, called Chemosis.

THE *Violence* of this *Disease* requires a speedy Cure ; for which Reason, as soon as the *Derivation* on the *Eye* is perceived,

ceived, the *Patient* must be let Blood, the first Day, twice in the *Arm*; the next Day, let him be purged briskly; and the same Night, if the *Symptoms* continue, let him be let Blood in the *Foot*; the Day after the *Purge*, let him be blooded in the *Neck*. This *Disease*, with Regard to the *Eye*, is the same as the *Pleurisy*, with Regard to the *Breast*; for the *Blood* has the same Colour and Quality, as in an *Inflammation* of the *Pleura*. Let a large *Blister* be laid to the *Patient's Shoulders*. In the Beginning, most People apply *Poultices*; but that Method is very pernicious, for the *Weight* of the *Cataplasms* is very troublesome, and, by the Use of them, the productive Matter of the *Inflammation* tends rather to suppurate, than to disperse: Whereas the proper Remedies are these which can mitigate the *Inflammation*, and carry off the Matter that causes it, by *Perspiration*; such is *Brandy*, mixed with a great deal of warm Water. The *Eye* must be washed often with this Mixture: Let a Dram of *Diaphoretick Mineral*, fresh made, be mixed in two Pints of common *Tisane*; the *Patient* must drink this Quantity in a Day and

a half. If the *Purge* gives Ease, let it be repeated again in two Days ; and, if the *Eye* seems disposed to a *Suppuration*, apply a resolvent, discutient Medicine to prevent it. Take of *Sage*, *Rosemary*, *Hyssop*, and *red Roses*, of each a Pugil ; let them have three or four Boils in half a Pint of *red Wine*, dip *Compresses* in it, and lay them to the *Eye*, taking Care not to press it too much with the *Bandage* ; if a Whiteness appears in the *Cornea Transparent*, drop some of this *Wine* into the *Eye* three Times a Day, wet the *Compress* as it grows dry ; if, by these Means, the *Swelling* of the *Eye* ceases, and the *Globe* does not come to a *Suppuration*, or if the *Matter* of the *Suppuration* be resolved and dissolved, without injuring the *Eye*, then make Use of the distilled Water of *Camphire* ; it must be dropp'd from Time to Time into the *Eye*, till all the *Redness* goes off. If the *Eye*, as often happens, remains weak, instead of this Water, I use a strengthening Water, which restores the *Eye* to its first State. We are sometimes obliged to open the *Abscess* with a *Lancet*, lest the *Stagnation* of its *Matter* might destroy

stroy the Parts of the *Eye* which inclose it. The Manner of performing that *Operation* may be found, in the *Chapter* which treats of the *Abscess* of the *Eye*.

A R T I C L E X.

Of the Cure of the Venereal Ophthalmy.

THIS *tenth* Species of *Ophthalmy* requires as speedy Help, as the precedent. The *Patient* must be let Blood in the *Foot*, to make a *Revulsion* of the *Humour* from the *Eye*; he must likewise take the *Panaceum Mercuriale*; he must use *House-baths*, Morning and Evening; he must be purged from the first Day of his *Bathing*, which sometimes must be repeated several Days successively; he must take the *Panaceum* every Night; his *Eye* must be washed very often with a Mixture of *Water* and *Brandy*; *Compresses*, wetted in the *Wine* described in the foregoing *Chapter*, must be constantly kept to his *Eyes*; by this Method, the *Disease*, if timely taken in Hand, will be cured in a short while; otherwise the *Eyes* will perish, or very little Sight will remain after the *Cure*.

ARTICLE XI.

Of the Cure of the Ophthalmy of the Choroides.

THE Cure of the *Ophthalmy* of the *Choroides* is the same as that of the *Chemosis*, with this Difference, that two Drops of the distilled Water of *Camphire* must be put into the *Patient's Eyes* every two Hours.

ARTICLE XII.

Of the Cure of the Ophthalmy, caused by Dirt in the Eye.

THIS *twelfth Species* of *Ophthalmy* is cured, by taking the *Dirt* out of the *Eye* ; if it penetrates into the *White* of the *Eye*, or into the *Cornea Transparent*, you must draw it out with the Extremity of the *Edge* of a *Lancet*, and so remove whatever is fixed in the *Globe*, as this *Dirt* commonly is. When the *Dirt* gets between the *Globe* and the *Eye-lids*, it may be brought away, by the Help of a *Silver Stilet* introduced between the *Globe* and the *Eye-lids*. If the *Dirt* is sunk into the *Eye-lid*,

Eye-lid, you must use an Instrument shaped like a *Scoop*, and, with the *Edge* of its *Groove*, extract the *Dirt*.

A singular Observation of Dirt, which penetrated under the first Membrane of the Eye.

A YOUNG *Miss*, *Pensioner* with the *Nuns* of *Haut - Bruiere*, broke a *Whale-bone Busk*; five small *Splinters*, about the Length of a Line or two, flew into her *Eye*, and glided between the *Blades* of the *Conjunctiva*; a *fleshy Elevation* was formed, at the Place where these *Splinters* were fixed. I easily took out two of them with the Point of my *Lancet*, because one of their Ends was not covered by the *Membrane*; but, as the others were intirely hid and covered, by a *Cicatrice* which was there formed, I drew them all three out with my *Cataract Needle*; I let eight Days pass between each; I pierced the first *Coat* with my *Needle*, and thrust it under one of these *Fragments*; when I had got my *Needle* under the *Splinter*, I turned it sideways, so that, as I raised

raised it, the *Edge* might cut the *Coat*; when the *Coat* was cut in this Manner, the *Whale-bone Splinter* bent and came out. I had equal Success with the rest. The *fleshy Eminence* was afterwards dispersed, by the Use of the *Lapis Divinus* dissolved in common Water.

A R T I C L E XIII.

Of the Cure of the Ophthalmy from Strokes in the Eye.

AS, in this Species of *Ophthalmy*, there is always some *extravasated Blood*, it is necessary to apply *anodyne discutient* Medicines, such as *Pidgeon's Blood*, which must be dropped into the *Eye* twice a Day; *Compresses*, steep'd in warm *Wine*, mixed with some Drops of the *Commander's Balsam*, must be laid to the *Eye-lids*; *Bleeding* must be repeated once, or oftener, as the Disease seems to require it. The *Eye* must be washed, three Times a Day, with a Mixture of *Aqua Vulneraria*, one Spoonful, in five Spoonfuls of the distilled Water of *Eye-bright*. Other Remedies may be afterwards used, still hav-
ing

ing due Regard to the State of the *Eye*, and to the *Symptoms* subsequent to the *Stroke*, as we have cautioned elsewhere.

A R T I C L E XIV.

Of the Cure of the Ophthalmy, proceeding from the Rupture of the Vessels spread on the Conjunctiva.

THIS Species of *Ophthalmy* is commonly cured, by dropping *Pidgeon's Blood* into the *Eye* three Times a Day, and afterwards applying a *Compress*, wetted in *Vulnerary Water*, which must be taken off, when it grows dry; then let fall some Drops of this *Water* into the *Eye*, to clear it of the *Pidgeon's Blood*. The *White* of the *Eye*, from *red* at first, becomes *yellow*, and afterwards recovers its natural *Whiteness*.

C H A P. VII.

Of the Ophthalmy subsequent to the Small-Pox.

IF violent *Ophthalmies* are so dangerous, as even to destroy the *Sight*, these, occasioned by the *Small-Pox*, are equally dreadful. The fatal *Experience* of several evinces this *Truth*. Some have looked upon the *Disorders*, proceeding from the *Small-Pox*, as incurable; but I can explode this Opinion, by many undoubted Proofs of the contrary. The *Small-Pox* causes four Sorts of *Diseases* in the *Eyes*, viz. the *Inflammation* of the *Conjunctiva*, the *Fistula Lacrimalis*, the *Abscess* of the *Cornea*, and *Ulcers* in the *Eye-lids*. All the four are often joined together; sometimes there is only one. In the Course of the *Small-Pox*, the *Face* and *Eye-lids* swell, the *Eyes* redden, and a *glutinous Matter* ouzes out of them; this glews the *Eye-lids* together, so that, when Care is not had to loose them, they remain shut several Days. This *Humour*, thus confined between the
Eye-

Eye-lids and the *Globe*, becomes acrid, and, by that Means, may ulcerate the *Cornea Transparent*, and injure the *Sight* considerably.

WHEN the *Pustules* of the *Small-Pox*, in the other Parts of the *Body*, suppurate, they cicatrife; but the *Pustules*, on the *Edge* of the *Cartilage* of the *Eye-lids*, which penetrate between the *Cilia* and their *inner Surface*, do not cicatrife, by Reason of the acrimonious *Serosity* which incessantly humects the *Eye*: Hence follow *Ulcers*, which last sometimes several *Years*, and even during *Life*, if they be not remedied.

THERE are two Sorts of *Ulcers* caused by the *Small-Pox* in the *Eye-lids*; some are attended with a Sort of *fungous Flesh*, which retards their Cure, till it be consumed. Others undermine the *Glands* that separate the *Film*, and so corrupt that *Humour*, which, by sticking like *Dirt* to their Surface, contributes very much to prolong the *Ulcers*; in Length of Time, it makes the *Eye-lashes* fall off.

THE third Accident, caused immediately by the *Small-Pox*, proceeds from a
viscid

viscid *Humour*, collected and lodged between the *Globe* and the *Eye-lids*, when they have been kept shut too long a Time. This *Humour* enters the *Lacrimonal Points*, passes into the *Lacrimonal Bag*, creates an *Obstruction* in the *Nasal Channel*, and so produces a *Fistula Lacrimonalis*.

THE fourth *Symptom* commonly happens twenty Days after the *Small-Pox*, and sometimes in the Height of the *Disease*; it is caused by a *Pock*, which appears in the *Middle* of the *Cornea Transparent*, between its *Pellicles*; the *Hardness* of the *Cornea* hinders the *Pock* to come out, unless it be superficial; then the *Pock* penetrates inwardly, and, by that Means, generates an *Abscess*; or else the *Matter* is extravasated between the *Blades* of the *Cornea*, congeals, hardens, and forms a *Spot* in that Part.

BESIDES the precedent Accidents, sometimes a violent *Defluxion* supervenes, when the *Patient*, after all the *Pustules* are cured, comes to take the *Air*. As the *Pores* of the *Skin* are exposed to the *Air*, they are, as it were, closed by it, so that the *Perspiration* of the Residue of the *Saline*

line Humour, which passed before thro' the *Ulcers* of the *Skin*, is hindered by this *Obstruction* of the *Pores*. This *Humour*, thus obstructed, returns into the *Vessels*, is discharged on the *Eyes*, and generates an *Humid Ophthalmy*, attended with a *Humour* so corrosive, that it excoriates the *Skin* of the *Face*.

C H A P. VIII.

Of Remedies for the Ophthalmy subsequent to the Small-Pox, and for the Symptoms which attend it.

AS I have described the *Diseases* proceeding from the *Small-Pox*, I shall now propound their proper Remedies. As to the Cure of the *Ophthalmy*, I refer my Reader to the *Chapter* of the *Humid Ophthalmy*; I shall only add this Caution: During the *Small-Pox*, make Use of a *Collyrium*, composed with *Saffron*; and the distilled Waters of *Roses* and *Plantain*; I use the distilled Water of *Camphire*, which, if applied in the Beginning, prevents all these *Symptoms*. It suffices to put some

O Drops

Drops of it into the *Eye*, three or four Times a Day ; and, to hinder the *Gluing* of the *Eye-lids*, which is of great Consequence, dip a *Feather* in the *Collyrium*, and glide it between the *Eye-lids*, several Times in the Day and in the Night.

THE Reader may find the Remedies for the *Pustules* of the *Small-Pox* on the *Cornea Transparent*, in the following Chapter, and the Remedies for the *Fistula Lacrimalis* in the Chapter which treats of it : At present, we shall only propose the Manner of Curing the *Ulcers* on the *Edges* of the *Eye-lids*.

OPHTHALMICK Waters, in general, are of very little Service ; but I have found, from my own *Experience*, that, by touching them with the *Lapis Infernalis*, they cicatrise easily. The violent Heat of the *Caustick* must be abated, as soon as they have been touched, by washing the *Eye* in a small *Glass* full of *warm Water* ; you must, above all, take Care, that the Part of the *Eye-lid*, which was cicatrised, may not bear against the *Globe* of the *Eye*, till the *Pain* is entirely gone off. They may be touched, in this Manner, once or
twice

twice a Week, till they seem to require no more Use of the *Caustick*; then lay on these Places, Morning and Evening, *Tutty* reduced to a very fine Powder; it will cicatrise them. We are to observe, that these *Ulcers*, which lie deep, are more difficult to cure, than those attended with *fungous Flesh*.

C H A P. IX.

Of the Abscess of the Eye.

THE *Abscess* of the *Eye* may be seated in different Parts of the *Eye*. It lies, sometimes, on the *Cornea Transparent*; at other Times, between the *Conjunctiva* and the *Cornea Opaque*; and, often, on the *Uvea*.

By *Abscess*, I understand a Collection of *Pus*, whether it be great, or small. When the *Abscess* is in the *Cornea Transparent*, as often happens after the *Small-Pox*, it is soon known, from a *Whiteness* which attends it; but, when it begins between the *Cornea Opaque* and the *Conjunctiva*, it may be known from the *Swelling*

of the *Eye*, which is more tumefied at the Place of the *Abscess*, than in any other Part. If the *Abscess* be formed in the *Uvea*, it often lurks concealed, till the *Pus* is extravasated into the *Aqueous Humour*.

ABSCESSES, which attack the *Cornea Transparent*, begin sometimes by a little *white Spot*, which appears on the first *Blade* of that *Membrane*; there follows an *Eminence* in the outward *Blades*; it is easily cured by pricking it lightly with the Point of a *Lancet*, and not piercing the other *Blades*. But, if the *Abscess* lies deeper, and in the Middle of the Thickness of the *Cornea*, and spreads to such a Breadth, that it almost covers all the *Transparency* of that *Membrane*, it then becomes what is commonly called an *Hypopion*; but, if this *Abscess* be not so large, and it breaks on the Inside of the *Eye*, and that the *Pus* falls into the *anterior Chamber*, between the *Iris* and the *Cornea Transparent*, and there makes a Gathering in Form of a *Speck*, shaped like a *Half-moon*, resembling that which appears at the Bottom of our *Nails*, it is then called *Onyx*.

SOME-

SOMETIMES the *Cornea Transparent* is clear of the *Abscess* which lies between the *Conjunctiva* and *Sclerotica*, or in the *Duplicature* of the latter ; the *Pus* breaks into the *anterior Chamber*, between the *Iris* and the *Cornea Transparent* : In the *first Case*, the *Pressure* of the *Eye-lids* may cause it ; and, in the *second*, it may proceed from the *Pressure* of the *Aponeuroses* of the *Muscles* of the *Globe*.

IN all these different *Abscesses*, there is great Danger of *losing* the *Sight* ; several of them, however, are cured, without the least Damage to the *Eyes*. In the *Chapter of Ophthalmies*, *Art. IX.* I proposed Remedies to resolve this Collection of *Pus* ; for which Reason, I shall here only speak of an *Operation*, which is sometimes necessary to discharge it. It is requisite, first, to give a *Rule* to know the *Quality* of the *Pus* in the *Eye*, which requires this *Operation* ; for often the *Matter*, that escaped into the *anterior Chamber*, between the *Iris* and the *Cornea Transparent*, is, in some Manner, dispersed, by Help of Remedies which have been already described ; tho' this *Matter* cannot be justly said to be

discussed, but is rather *precipitated* to the Bottom of the *Eye*.

WHEN this *Pus* is not dispersed, but rather increases, so as to enter the Hole of the *Pupil*, it is then full Time to perform the following Operation.

LET the *Patient* be set fronting a great *Light*, with his *Head* on the Back of an *easy Chair*; then make an *Incision* in the *Cornea Transparent*, under the Hole of the *Pupil*; you must take care the Point of your *Lancet* do not touch the *Iris* which lies behind the *Pus*. The *Aperture* must be made long enough to let the *Pus* out; to help the *Discharge* of it, inject warm Water into the *Aperture*; it will wash, and, as it flows out, it will bring away the *Matter*. Lay on the *Eye* a *Compress* wetted in a *Collyrium* made of *Rose*, *Fennel*, and *Plantain Waters* with the *White* of an *Egg* beat in them; it must be kept moist by sprinkling it, from Time to Time, with the said *Collyrium*, some of which must be dropp'd, three or four Times a Day, on the *Orifice* in the *Cornea*. Some Days after this *Pus* is emptied, there is, for the most Part, a Collection of fresh *Pus*, in the Place

Place from whence the former was discharged. In this Case, introduce a fine *Stilet* into the *Incision* made to open the *Abscess*, and so let out this *Matter*, as you had done the first Time. If no fresh *Matter* gathers, the *Orifice* may be let to close; and, if the *Eye* still continues inflamed, apply proper Remedies which I shall not repeat, having already described them, in the *Chapter* of *Ophthalmies*.

CHAP. X.

Of Ulcers of the Cornea.

ULCE RS of the *Cornea Transparent* are the Result of *Abscesses* and *Ophthalmies*, their Breadth and Depth are proportional to the Violence of the *Disease* which preceded them; as their different Appellations are not conducive to their Cure, I shall omit them, and shall only describe their distinguishing Signs.

WHEN there is an *Ulcer* in the *Cornea Transparent*, the *Patients*, by Reason of the *Inflammation*, cannot bear the *Light*; they imagine the *Rays* of *Light* prick their

Eyes, like so many *Needle-points*; at the ulcerated Part, there appears a *Cavity*, large, in Proportion to the Depth of the *Ulcer*.

To cure these *Ulcers*, before any Remedies proper to cicatrise them be applied, the *Inflammation* must be abated; the *Serous Humour*, which caused them, must be revulsed: This may be effected by Remedies mentioned in the *Chapter* of *Ophthalmies*.

WHEN the *Inflammation* is dispersed, if any *Ulcers* remain which are not cicatrised, besides the forementioned Remedies, there is scarce a better than HARTMAN'S *green Water*, which he made use of in *Ulcers* of the *Throat*; this *Water* put into the *Eye*, either stronger, or weaker, as the *Patients* can bear it, cicatrises these *Ulcers*, in a short Time, and consumes the *Spot*, which remain after the *Cicatrices*: When the *Patient* cannot bear this *Water*, and that the *Disease* grows rebellious, *Spirituous* Remedies must be applied; such is *Spanish Wine*, in which *Cloves*, *Aloes*, *Crocus Metallorum*, *Camphire*, and *Tutty* have been infused. Some Drops of this *Infusion*, put into the *Eye* three or four Times a Day, will cicatrise these *Ulcers*.

As to *Spots* which remain after the *Ulcers*, they are greater or smaller, more or less elevated, in Proportion to the Violence of the precedent *Disease*. Some pretend to remove them by *Paring* off a *Scale* from the *Spot*; but this Practice is very dangerous, for, if this Part be brought away by a *Lancet*, or any other Instrument, it will make a fresh *Wound*, which must be cicatrised likewise; this *Cicatrice* will leave as great an *Opacity* as the first. There are sometimes *Blood-vessels* which nourish the *Spot*, and pass over the *Conjunctiva*; these *Vessels* may be cut with an *edged Needle*, or with a *Lancet* introduced under them. What I now mention, must not be understood, as if I designed to lay aside an Operation by which a *Pellicle* of the *Cornea Transparent* may be raised, when *Pus* is extravasated from a *Pustule* of the *Small-Pox* between the *Blades* of that *Membrane*; and this is the only Case which admits of that Operation. Our last Aim must be to disperse the *Spot*, and restore the *Cornea* to its *Transparency*. *Allum*, *Sugar-Candy*, and an *Egg-shell* very finely powdered, may be applied, the Bigness of
a *Lentil*

a *Lentil* dropp'd on the *Spot*, once a Day ; or the *Spot* may be touched with *Oil of Linnen*, or such Medicines.

C H A P. XI.

Of Staphiloma's.

THE Word *Staphiloma* is only designed to signify an *Elevation* on all the *Cornea Transparent*, or on Part of it ; *Experience*, however, shews it is often in the *Cornea Opaque*, even the Breadth of a Line beyond its *Union* with the *Cornea Transparent*.

Two Causes may produce this *Disease*. The *first* proceeds from the *Matter* of an *Abscess*, which had mined thro' some of the *Blades* of the *Cornea*, by which Means the other *Blades* are relaxed, and cannot resist the Impulse of the *Aqueous Humour*, so that they jet outwards and form this *Eminence*, called *Staphiloma*; the Basis of which will be proportional to the Corrosion of the *Cornea*, and the Size of the *Tumour* will be greater or less, in Proportion to the Quantity of *Aqueous Humour* which occasions the Swelling. The *second* Cause of a
Staphiloma

Staphiloma is an intire *Solution* of the Substance of the *Cornea Transparent* in that Part which answers the *Iris*, or of the *Cornea Opaque*, about a Line beyond its Union with the *Cornea Transparent*; it turns out the *Uvea*, and forms an *Eminence* in the Place the *Solution* was made; it may proceed either from an *internal* or *external* Cause.

A *Staphiloma* assumes various Names, from the different Things represented by the *Eminence*: It is called *Raisin-like*, when it resembles the Shape of a *Grape-Stone*: *Apple-like*, when the *Tumour* is larger than the former, and resembles a small *Apple*. It is called a *Nail*, when it has some Likeness to the *Head* of a *Nail*; it is called *Myocephalon*, when the *Tumour* somewhat resembles the *Head* of a *Fly*.

BUT, besides all these Species, I have discovered a very singular Sort, of which no Author, to my Knowledge, has taken any Notice. I have seen a *Staphiloma* on the *Conjunctiva*: It came by a *Stroke* received on the *Eye*, in the upper Part of the *Globe* within a Line of the *Cornea Transparent*. The Violence of the *Stroke* had

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had severed the *Cornea Opaque*, without damaging the *Conjunctiva* ; as the *Aqueous Humour* flowed through the *Solution*, it raised the *Conjunctiva* in the Manner of a *Staphiloma*. I cured it by a *compressive Bandage*, (the *Eye* being shut) applied to the Part of the *Eye-lid* opposite the Tumour ; this repelled the *Aqueous Humour* into the *Cavity* of the *Globe*, and gave room to the *Membranes* to close and unite.

THIS *Disease* is very dangerous, for it brings on continual *Defluxions*, great *Pains* in the *Head*, often *Want* of *Sleep*, and *Abscesses* in the Inside of the *Eye* ; add, to all these, the *Deformity* it causes in the *Eye*.

THE *Antients*, to remove this *Deformity*, performed the following Operation : They passed a *Needle*, threaded with double flaxen *Thread*, through the Middle of the Basis of the *Staphiloma* ; when the *Thread* was through, they cut it near the *Needle*, took hold of both Ends of one Side of the *Thread*, made a double Knot towards the Basis of the *Staphiloma*, and tied the Tumour moderately, to avoid cutting it ; yet they took care to tye it hard enough to bring the *Staphiloma* to mortify and decay.

THEY

THEY made a *Knot* with the other *Thread* on the opposite Side, and, by Means of this *Ligature*, the *Staphiloma* fell off. As this Operation is attended with dismal *Symptoms*, violent *Pains*, *Inflammation*, and often with an *Abscess* of the *Eye*. I have found out a Method more safe and easy for the *Patient*, which is contained in the two following Operations; the *first* is for *Staphiloma's* that do not extend the whole Length of the *Cornea Transparent*. I take an *edged Needle*, somewhat crooked, threaded with *Silk*; I pass it through the Middle of the *Staphiloma*; when the *Silk* is run through, I withdraw the *Needle*, and, holding both Ends of the *Silk* with my *left Hand*, I twist them a little; afterwards, with a *Lancet*, I cut the *Tumour* in its Basis below the *Silk*, and, with one Nip of my *Scissars*, I take it off intirely. Afterwards I dress the *Patient* with *Spirit of Wine* and common Water, as in the Operation for a *Cataract*. The *Staphiloma* is removed by this Method, whether the *Cornea* grows thicker as it cicatrises, or whether there remains a little Hole in the Middle of the *Wound*, through which the

Aqueous

Aqueous Humour, when in too great Plenty in the *Eye*, is discharged; this does not at all incommode the *Patient*, for this *Humour* passes, as the *Tears* do, through the *Nose*.

THE *second* Operation is designed for *Staphiloma's* that cover all the *Cornea Transparent*, and is the same which is described, in the *Chapter* of the *artificial Eye*.

SOME advise to give a *Stroke* with a *Lancet* to the *Eye*, to discharge whatever is contained in the *Globe*; but this Operation is very dangerous, and brings on very fatal *Symptoms*, such are *Pains* in the *Head* and *Want* of *Sleep*, that last sometimes half a Year; all these *Symptoms* proceed from the *Irritation* and *Inflammation* of the *Iris*, which should have been taken off by the Operation.

C H A P. XII.

Of the Albugo.

THE *Albugo* is a Sort of a *Spot* on the *Cornea Transparent*, and is caused by a *whitish Juice* obstructed in that
Membrane;

Membrane ; this *Juice* is infiltrated by Degrees, and increases sometimes so as to cover all the *Cornea Transparent*, which hinders the *Patient* to distinguish *Objects*.

SEVERAL confound this *Disease* with *Abscesses* of the *Cornea Transparent*, and with *Cicatrices* that remain after an *Abscess*, or an *Ulcer* on that *Membrane* ; but, to prevent this *Mistake*, we must remind, that *Abscesses* are always accompanied with a violent *Inflammation*, and great *Pains* in the *Head* ; whereas, in the *Albugo*, the *Inflammation* is light with *Pulsation* and *Weeping*, but without any *Head-ach*.

THE *Spots* and *Cicatrices* differ likewise from an *Albugo*, for they are without *Inflammation*, and the *Light* gives no *Pain* or *Uneasiness* ; but, in an *Albugo*, besides the *Inflammation*, the *Light* is very painful ; besides, the Colour of an *Albugo* is not so white as that of the *Cicatrices*.

THIS *Disease* proceeds from a *Stagnation* of the *Blood*, and from an *Obstruction* in the *Vessels* of the *Cornea* that furnish this whitish *Juice*, which, in my Opinion, forms this *Spot*.

THIS *Disease* is more troublesome than dangerous ; for the most Part, it is exempt from the *Loss of Sight*, when proper Remedies are applied, in Time.

TWO Intentions are to be satisfied, in the Cure of this *Disease* : *First*, the Increase of the *Obstruction* must be hindered ; *Secondly*, the *Obstruction*, already formed, must be removed. The *first* requires an exact Diet : Let the *Patient* take, every Morning, a small *Veal-broth* impregnated with cooling *Herbs* ; or, instead of it, a Pint of *Whey* mixed with an Ounce of *Syrup of Violets* ; the remaining Part of the Day, let him take some *Broths*, as usual, and *Soupes* in the Intervals. This *Regimen* must be observed the first five or six Days, after which the *Patient* may be allowed to eat some *Bread* without *Meat* ; his common *Drink* must be a plain *Tisane*.

BESIDES these, *Bleeding* in the *Arm*, in the *Foot*, or in the *Neck*, according to the Exigency of the Case, must be put in Practice : You may likewise order the *House-baths*, with *Blistering Plaisters* to the *Nape of the Neck*, let them be kept on for some Time.

THE *second* Intention is answered by the Use of *Spirituos* Remedies, and dis-
cutient *Topicks*, such, as an Infusion of
Fennel and *Anise* in good *Brandy*; let a
Spoonful of it be mixed with the Waters
of *Eye-bright*, *Fennel*, and *Plantain*, of
each two Spoonfuls; you must carefully
avoid *Vitriolick* Waters, they are very per-
nicious; and apt to change this *Disease* to
an *Abscess*, or *Ulcer*.

WHEN the *Inflammation* is gone, I use
an *Ophthalmick* Water, which perfectly
clears the *Sight*, by instilling, often in the
Day, some Drops of it on the *whitish*
Part.

IF this Method be faithfully observed,
the *Patient* will see and distinguish *Ob-
jects*, in five or six Weeks. If the *Disease*
grows rebellious to these Remedies, and
that any *varicous Blood-vessel* appears on the
Conjunctiva, it must be cut, without the
least Delay, in the Manner I have already
taught.

C H A P. XIII.

Of a Cataract in General.

AUTHORS do not agree about the Nature of *Cataracts*: Some think the *Cristalline* is affected; others will have it to be a *Membrane* formed by the *Thickening* of the *Aqueous Humour*, which adheres to the Edge of the *Pupil*, and stops the Passage of the *Rays of Light*.

THIS Diversity of Opinions must not be imputed to the *Obstinacy* of these Authors; It may, with greater Presumption, be ascribed to the *few* Occasions they had of undeceiving themselves, for, if this Matter be carefully examined, we shall find both *Cristalline* and *Membranous Cataracts*; we may even establish as many Species of *Cataracts* of the *Cristalline*, as there are Alterations of that *Humour*.

As to *Membranous Cataracts*, I remark *two* Sorts; the *first* proceeds from an *Opacity* of the *Membrane*, which covers the Socket of the *Vitreous Humour* that lies behind the *Cristalline*. The *second* Sort is subsequent to *Defluxions* of the *Choroides*.

In

In these *Defluxions*, a *Matter* like *Pus* is extravasated into the *Aqueous Humour*; this *Matter* grows dry, and forms a *membranous Body*. A *third* Sort of *Cataract* may be added, and is caused by an *Opacity* of the *Membrane* which covers the *Fore-part* of the *Cristalline*, provided this *Membrane* may be defected, whilst the *Cristalline Humour* remains uninjured, of which *Experience* has not, hitherto, convinced me; neither am I satisfied, as to that Sort which is said to be caused by a *Congestion* or *Coagulation* of the *Aqueous Humour*. I have, it is true, often seen an *Opacity*, in a small *Portion* of the *Membrane* which covers the *Fore-part* of the *Cristalline*, without the *Loss* of *Sight*, because the *Cristalline* and the rest of that *Membrane* remained sound.

THOSE, who have never seen any but *Membranous Cataracts*, have been as much mistaken, as those who knew none but *Cristalline Cataracts*. In order to give a more clear *Idea* of the different *Species* of a *Cataract*, I shall divide them into *true*, *doubtful*, and *false Cataracts*.

C H A P. XIV.

Of a true Cataract.

MOST Moderns define a *true Cataract* to be the *Cristalline Humour* affected, and not a *Membrane* formed in the *Aqueous Humour*, as the *Antients* described it. I adhere to the *Moderns*; numberless *Experiments* have evidently shewn the *Error* of the *Latter*. Still we see many *Persons* persist to sustain the *Opinions* of these *learned Men*, who were not infallible: They postpone a *Conviction* from *ocular Demonstration*, and manifest *Experiments*, to the *Reasons* advanced by these *Authors* in *Behalf* of their *Opinion*.

I WAS, a long Time, of their *Opinion*, that a *Cataract*, curable by the *Operation*, was a *Membrane* formed in the *Aqueous Humour*. But *two Reflexions* have intirely undeceived me. The *first* is on the *Manner* a *Cataract* is formed, from its *Beginning* to its full *Maturity*. My *second Reflexion* is on the *Result* of the *Operation*, which this *Disease* requires. When a *Cataract* begins, it lies in so deep, that it
can

can hardly be distinguished; thence I conclude, if it was a *Membrane*, or *Congestion* of the *Aqueous Humour*, and it was situate in the *posterior Chamber* of the *Eye*, behind the *Iris*, it might be easily perceived, neither would it lie so far in. Three or four Months after, more or less, the *Patients* complain of a *Diminution* of their *Sight*. When we examine their *Eyes*, we perceive a *Whiteness* on the *Inside* very far back, without any apparent *Dimness* or *Thickening* of the *Aqueous Humour*; this seems to shew, that it is the *Cristalline Humour* which begins to grow *opaque*. By observing the *Patient's Eyes*, from Time to Time, we sensibly perceive the *Cristalline* advance towards the Hole of the *Pupil*; and the *Sight* lessens gradually, till the *Cataract* comes near the *Pupil*, which it closes, as a Sort of *Curtain* drawn before a *Window*, which leaves room for some *Light* to enter the *Chamber*, though *Objects* cannot be distinguished across it.

THIS Reflexion seems of Force sufficient to evince, that a *Cataract* is not a *Membrane* produced in the *Aqueous Humour*, nor a *Thickening* of that *Humour*;

were it so, it would remain in the same Place whence it had its Origin, neither would it change its Situation, as I have shewn it does in its Beginning, in its Progress, and in its Maturity.

My *second* Reflexion is taken from the Operation of the *Cataract*: For when the *Eye* is pierced, and the *Needle* thrust in, it happens sometimes that it enters into the Middle of the *Body* which forms the *Disease*, though, at the same Time, it was directed in such a Manner, that it could not penetrate to the Place where the *Crystalline* is naturally situate; yet when the *Cataract* is couched, and the *Needle* is raised, there appears, through the Hole of the *Pupil*, an *opaque Body* adhering to the End of the *Needle*. Were this *Body* a *Membrane*, it would be *flat* or *plaited*, and not of a *convex* Figure; by these Circumstances, we may conclude it is the *Crystalline* which is depressed in this Operation, together with the *Membrane* that retained it in the *Vitreous Humour*, before it was affected; for, if it could any Ways escape out of that *Membrane*, it would fall of its own accord to the Bottom of the *Eye*;
but,

but, as it cannot escape, it must necessarily remain adherent to the *Membrane* which covers it.

THAT a *Cataract* is seated in the *Cristalline Humour*, I shall give another convincing Proof, deduced from an *Experiment* made on the *Eye* of a *Man* that died, at the *Hospital* of the Name of *Jesus*: He had undergone the Operation of the *Cataract*, in the Hands of Mr. *Woolhouse*. I desired M. *Mery*, of the *Royal Academy of Sciences*, to come thither and examine the *Eye*: He drew the operated *Eye* out of the *Orbit*, opened it, and found the *Cristalline* placed in the Bottom of the *Globe* of the *Eye*, at the posterior and inferior Part of the *Pupil*, to which Place the Operator had depressed it. This proves sufficiently, the *Seat* of a *Cataract* is in the *Cristalline*. In the Sequel of this *Treatise*, all Things will appear to corroborate these Proofs: Whosoever desires to be further informed, let him consult the *Works* of *Messieurs Antoine Brisseau* and *Heister*, who have detected the *Error* into which the *Antients* were led, for Want of fully examining this Matter.

THESE new Opinions engaged the *Members* of the *Royal Academy of Sciences* to make several *Experiments*, in search of the *Truth*; and, since that Time, several of them have abandoned the *Error* of the *Antients*, as may be seen in their *Memoirs*.

A true *Cataract* is, then, an *Alteration* of the *Cristalline*, which loses its natural *Transparency*, becomes *opaque*, and at length hinders the *Rays* of *Light* reflected from *luminous Bodies* to pass to the Fund of the *Eye*, there to make their *Impression*, by which Means there is no *Sight*, till the *Cataract* is either depressed by the *Operation*, or falls spontaneously by its *Weight*, as I observed in the *two* following Cases.

THE *first* happened to one M. *Barthelemy*, *Dean* of the *Account-Office*; he was about threescore and ten Years old, and lived in *Rue de la Cerisaye* in *Paris*; his *Cataract* fell of its own Accord, and was lodged in the Place where it is usually laid by the *Needle*, so that he could see as well as People do, after the *Operation* of the *Cataract* has been well performed.

THE *second* Instance happened, in *Rue de Richelieu*, to an old blind *Bitch* belonging to the *Countess of Chamillart*. People were surprized one Day, that this *Bitch*, contrary to Custom, could see enough to guide herself; as I went frequently to that House, to visit the *Abbot de Guide*, for whom I had couched a *Cataract*, they shewed me the *Bitch*; in one of her *Eyes* I perceived a *Cataract* half depressed, so that a sufficient Quantity of *Light* passed to the Bottom of her *Eye*, and enabled her to see.

AFTER having, as it were demonstrated, the *Cristalline* to be the Seat of *true Cataracts*, we must now shew, that the different *Alterations* of that *Humour* constitute the different Sorts of *true Cataracts*.

I ADMIT *three* Sorts of *Alterations* of the *Cristalline* in *true Cataracts*. In the *first*, the *Cristalline* becomes soft, and, as it were, mucilaginous. In the *second*, the *Cristalline* grows hard and dry. In the *third*, the inner Part of the *Substance* of this *Humour* becomes purulent, whilst the outward *Lays*, and the *Membrane* which covers it,

it, serve as a *Purse* and *Cystis* for this *Matter*.

THE Situation of *true Cataracts* is various: Sometimes they advance towards the *Pupil*, till they are full ripe; then they lie on the *inner Circumference* of the *Iris*. At other Times, though the *Cristalline* is loosed from the Socket of the *Vitreous Humour*, still it advances very little towards the *Pupil*, but remains in the Middle of the *posterior Chamber* where the *Cataract* ripens. Persons, attacked with this *last Species*, do not intirely lose their *Sight*; and, tho' their *Cataracts* be full ripe, they can perceive *Objects*, but in a very confused Manner, because some *Rays of Light* pass to the Bottom of the *Eye*, about the *Circumference* of the *Cataract*.

AUTHORS have established *two* particular Sorts of *true Cataracts* by the Names of the *Milky* and the *Cheesy*, but, in this, they were mistaken; for these pretended Species of *Cataracts* are only the different Degrees of *Alteration*, which the *Cristalline* must undergo, before it arrives to a full *Ripeness*; for which Reason they are seldom

dom found but when the *Cataract* is couch-
ed too soon.

CATARACTS from the *Birth* re-
quire a long Time to ripen. Besides, as
Children have not Resolution enough to
bear the *Needle* to their *Eye*, they often
cause their *Eyes* to be damaged, and their
Sight destroyed. I have seen a like Ac-
cident happen to a *Merchant's Daughter*
in *Rue de Thevenot* : At the Age of seven
Years, she had a *Cataract* couched by M.
Gerrard the *Father* ; for which Reason, I
let *Children* alone, till they are ten or twelve
Years old, lest I should meet with the same
Misfortune.

SOMETIMES the *Center* of a *Cataract*
from the *Birth* is petrified ; there is some-
thing in the Middle of the *Body* of the
Cataract, about the Bigness of a *Pin's Head*,
hard and concrete like a *Stone*. A *Noise* is
even heard, when the *Needle*, in the Couch-
ing, touches that Place, as if it rubbed a-
gainst a small *Pebble-Stone*. This does not
hinder the *Patient* to recover his *Sight*, af-
ter the *Cataract* has been couched.

CHAP. XV.

Of doubtful Cataracts.

I CALL that *Cataract* a *doubtful Cataract*, in which the Success of the Operation is as uncertain, as the Use of *Topical Remedies*. I admit *four* Sorts: The *first* is a Kind of *Membrane*, which appears and is formed, after a *purulent Matter* has been extravasated into the *Aqueous Humour*. In the Sequel of this *Treatise*, I shall distinguish this Sort by the Name of a *Membranous Cataract*. The *second* Species is called *Filamentous*, from the great Number of *Filaments* which compose it. The *third* is a *Displacing* of the *Cristalline* from a *Stroke* received in the *Eye*. The *fourth* is an *Alteration* of the *Membrane* that covers the Bottom of the Socket of the *Vitreous Humour*.

A R T I C L E I.

Of a Membranous Cataract.

I HAVE already observed a *Membranous Cataract* to be the Result of an *Ophthalmia* of the *Choroides* and *Uvea*; their obstructed *Vessels* emit a *whitish Pus* into the *Aqueous Humour*; this *Pus*, by its *Viscosity*, adheres to the *Circumference* of the *Pupil*, and there appears like a fine *Cloth*. When this Matter is not very redundant, it does not intirely close the *Pupil*; in this Case, if the *Fluxion* ceases, before it has damaged the Bottom of the *Eye*, it leaves a sufficient Passage for the *Light* to make its Impression, so that the *Patients* see a little, but their *Sight* is weak: But if the *Fluxion* reaches to the Bottom of the *Eye*, and it destroys the Action of these *Fibres* which convey the *Animal Spirits* to the *Eye*, the *Sight* perishes. I had an Instance of this in the Person of M. *Vihaude*, who had been attacked by a violent *Defluxion* on both his *Eyes*; one of them perished by an *Abscess*, and the other was seized with a *Membranous Cataract*.

Cataract, which had destroyed his *Sight*; *M. Woolhouse* promised to restore it, by *couching* the *Cataract*. This *Patient* came afterwards to consult me; but, as I found the *Cataract* complicated with a *Gutta Serena*, I assured him the Operation would be of no Service to him; still he persisted to engage me to undertake it, and, as I was satisfied it would not succeed, I would not perform it, but in Presence of another *Oculist*. *M. Bailly*, the *Father*, was called; he, in Complaisance to the *Patient*, told him, if the Operation did not restore his *Sight*, it would not injure his *Eye*.

I PERFORMED the Operation, in Presence of this dextrous *Oculist*; the *Cataract* was well depressed, *Objects* were presented to him, but he could not see any of them, tho' the *Pupil* seemed very clear. When the Bottom of the *Eye* is not damaged, there remain certain Openings in this *Cataract*, thro' which the *Patients* can see; I shall relate two Instances. A *Woollen-Dra-per*, of the City of *Beauvais*, came to *Paris* to be cured of an inveterate *Defluxion* on both his *Eyes*, which hindered him to distinguish *Objects*, because there was a
whitish

whitish Humour placed in the *Pupils*; a Fortnight after, the *Fluxion* went off, and his *Sight* began to return by Degrees, for the *Matter* in the Hole of the *Pupil* spent itself, and the *Patient*, by Degrees, could see again to read. His *Sight*, however, continued weak, because the *Iris* had been straitened by a Part of that *whitish Matter*, and left but a small Space for the Entrance of the *Rays* of *Light* into the *Eye*.

THERE is also another Kind of Effusion of *whitish Matter* into the *Aqueous Humour*, which places itself behind the Hole of the *Pupil*, and there remains till the *Defluxion* ceases. I have seen this Case, in one M. *Lomery*; I attended him, in the Year 1713, when he had a violent *Defluxion*, neither could he see at all with the distempered *Eye*. There appeared, behind the Hole of the *Pupil*, a Sort of *purulent Cataract*, which, as soon as it attained a certain Consistence, fell to the Bottom of the *Eye*, with which he could see very well afterwards.

THESE Examples shew, a *Membranous Cataract* has three different Places of Situation: 1. When it closes the intire *Pupil*,
and

and adheres to its *Circumference*. 2. When the *Cataract*, tho' adherent, stops only Part of the Hole of the *Pupil*. 3. When the *Matter*, which forms the *Cataract*, floats in the *Aqueous Humour*, behind the *Iris*, without sticking to it; and, when the *Defluxion* goes off, it falls commonly to the Bottom of the *Eye*; for, if it adheres to the Back-part of the *Pupil*, it forms a *Membranous Cataract*.

WHAT I have now said demonstrates, that I admit of *Membranous Cataracts*, which proceed from *Abscesses* of the *Choroides* or *Uvea*, that discharge their *Matter* into the *Aqueous Humour*. The more *liquid* Part of this extravasated *Matter* mixes with the *Aqueous Humour*, whilst the more *solid* Part gathers together, and settles in the several Places I have mentioned. If this *Matter* remains behind the *Iris*, it will form a *Cataract* like a *Membrane*, without engaging the *Cristalline*; and this I call a *Membranous Cataract*. The Success of the Operation, in this Kind of *Cataract*, is not to be doubted, provided the *Defluxion*, which caused the *Abscess*, has not destroyed the essential Parts of *Vision*,
which

which yet happens but very seldom. This Species of *Cataracts* is very rare; for which Reason, I assert all *Cataracts*, in which the Operation succeeds, are an *Alteration* of the *Cristalline*.

THOSE, who assert, that none, but *Membranous Cataracts*, are helped by the Operation, have not, hitherto, given any convincing Proof of their Opinion. Had they opened an *Eye*, and found the *Cristalline* intire, after the *Death* of a Person, on whom a *Cataract* of this Sort had been couched, and who had seen, after the Operation, his *Cristalline* remaining without any *Alteration*, they would have some Foundation to defend their Assertion; and they might justly claim our Assent, could they produce several *Experiments* of this Sort well attested. They have only given us a *Dissection* of some *Eyes*, on which the Operation had never been performed; whereas the contrary Opinion, which maintains, that almost all *Cataracts* proceed from an *Alteration* of the *Cristalline*; is confirmed by an infinite Number of well attested *Experiments*, made on the *Eyes* of Persons who had underwent the

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Operation, and saw, from that Time, to their *Death*; when their *Eyes* were opened, the *Cristalline* was found couched, together with the *Membrane* that covers it.

WE have also several *Experiments*, made on Persons who had lived many Years after the *Couching* of their *Cataracts*; the *Body*, which had been depressed, having passed thro' the Hole of the *Pupil*, into the *anterior Chamber* of the *Eye*, was taken out, by an *Incision* made in the *Cornea Transparent*; and, upon Examination, it appeared to be the *Cristalline*, that had passed thro' the *Pupil*, the *Patients* having afterwards seen perfectly to read, with *Cataract-Spectacles*.

A R T I C L E II.

Of a Filamentous Cataract.

I RECKON this Species amongst the doubtful *Cataracts*, altho' it seems to be a true *Cataract*: It is very properly called *Filamentous*, for, in the *Couching* of it, the *Needle* seems to draw off numberless small *Filaments*. This *Cataract* cannot be cured by the Operation, for these *Filaments* cannot be broke; I think this Remark necessary,

fary, in order to precaution any one, who may meet with a Case of this Nature, that is very rare, not to be surprized at it.

ARTICLE III.

Of Cataracts proceeding from Strokes.

SOME Oculists are of Opinion, that Cataracts, from Strokes received in the Eye, or in the adjacent Parts, are incurable: But I have several Experiments of the contrary. I shall here mention one, in the Person of a Man, named Constantine, living in Paris Rue du Verbois aux Carnaux: He had been shot, sixteen Years before, in both his Eyes; the small Shot, which had penetrated between the Membranes, came out, from Time to Time, of their own Accord, for the Space of three or four Years which intervened, from the Time he had received the Shot, to the Time of the Operation; by the Violence of the Stroke, the Globe of the Eye was sunk in, because the Compression of the Blow had extended the Sides of the Globe. The Crystalline, together with its Membrane, was loosened, and advanced towards the Pupil, to which it seemed to adhere, on the Side

of the *little Angle*, where one of the *small Shot* had penetrated thro' the *Iris* to its Union with the *Cornea Transparent*; the *Pupil* itself became oblong on that Side. The *Iris* had no Movement, either of *Dilatation*, or *Contraction*; yet this *Man* could perceive, on that same Side, the *Shade* of a *Hand* placed between his *Eye* and the *Light*: This determined me to perform the Operation, about twelve Years ago; since which Time he has seen, with that *Eye*, as well as if the *Cataract* had proceeded from an *inward Cause*. What is more surprising; after he had been *shot* in this Manner, he lost the *Sight* of his other *Eye*, tho' nothing appeared in the *Humours*, that could darken it; and, a Year after the said Operation, the *Sight* of it was restored, without any Application.

WHEN the *Eye* receives a violent *Stroke*, the *Cristalline* is loosed immediately, and, in two or three Days, it becomes opaque, so that the *Patients* can only perceive the *Light*: I say, these *Cataracts* have three different Situations; 1. When the *Cristalline*, already loosed by the *Stroke* on the *Eye*, advances towards the *Pupil*. In this Case,

Case, if it grows dry, before it touches the *Iris*, it falls of its own Accord, and the *Patients* can see again, without any Operation ; but, when it is placed behind the *Iris*, if then it adheres to the *Iris*, the Operation is necessary. This is the *second* Place of Situation for these *Cataracts*, when the *Cristalline* advances, and adheres to the *Pupil*. The *third* Place is, when the *Cataract* passes altogether into the *anterior Chamber*, and is placed between the *Cornea Transparent* and the *Iris*; from whence it must be taken out, in the Manner that shall be described in the Sequel of this *Treatise*.

A R T I C L E IV.

Of a Cataract, caused by the Alteration of the Membrane which covers the Socket of the Vitreous Humour.

I R E C K O N, amongst doubtful *Cataracts*, the *Alteration* of the *Membrane* which covers the Bottom of the Socket of the *Vitreous Humour*. In this Sort, the *Sight* is not altogether lost, it is only weakened : In this Case, there appears, thro' the Hole of the *Pupil*, a *Whiteness* that is

thin and flat, and seems to be the *Membrane* which covers the Bottom of the Socket of the *Vitreous Humour*, in which there is an *Alteration*. It often assumes the Form of a *Star*, leaves some Intervals without *Opacity*, and some *opaque*; so that this *Opacity*, which affects only the *concave* Part of the Socket, flowing from the Center to the Circumference, appears like a *Star*. In this *Disease*, the *Cristalline* is not loosed, and the *Sight*, tho' weak, subsists.

C H A P. XVI.

Of false Cataracts.

TH E S E *Cataracts* are called *false*, in which Medicines afford no Relief, and admit of the Operation only to remove the *Deformity*, or *Pains*, which attend them. I reduce them to *two* Sorts, *viz.* the *Glaucoma* and the *Shaking Cataract*.

A R T I C L E I.

Of a Glaucoma.

THAT *Disease* is called *Glaucoma*, in which the *Cristalline* is of the Colour of *Sea-water*. I am convinced, by my own *Practice*, that it is only of that Colour in its Beginning, for, afterwards, it becomes *whitish*, or *greyish*. There are various Opinions of this *Disease*, both as to its Origin, and the different Seats allotted to it. Some have judged it to be simply an *Alteration* of the *Cristalline*; and others, of the *Vitreous Humour*, &c. I found, by an Inspection of *Eyes* afflicted with this *Disease*, a Sort of *Alteration* in the *Cristalline*, which supervened to a *Palsy* of the *Visual Nerves*. This *Palsy* is, at first, known by a *Dilatation* of the *Pupil*.

THE *Signs* of a *Glaucoma*, in its Beginning, are a *Smoke* and *Mists*, which seem to pass before the *Patients Eyes*, and confuse their *Sight*. They still can see *Objects*, but imperfectly, and only at the Corner of their *Eye*, because some *Fibres* remain not totally obstructed. The *Sight* decays by Degrees, and the *Patients* can

only distinguish the *Light* ; then the *Cristalline* is engaged, loses its *Transparency*, and, at first, assumes the Colour of the *Sea-water*. As it grows more solid, it changes its first Colour, appearing like a *Cataract*, sometimes of one Colour, and sometimes of another, as I have already observed. This is what I call a *Glaucoma*, which differs from a *true Cataract*, by the *Complication* of a *Gutta Serena*. A *Glaucoma* begins sometimes after the *Crisis* of a *Fever*, in which the *morbifick Matter* is removed to the *Eye*, and causes an *Inflammation* in all the *Membranes*, except the *Conjunctiva*, which is but lightly affected ; the *Patients* feel an acute *Pain* in the *Fund* of the *Eye*, and in the *Temples* ; a *Gutta Serena* follows this *Fluxion*, and a *Glaucoma* ensues.

SOMETIMES the *Stroke* of the *Light* of the *Sun* produces this *Disease* ; as I saw, in the Year 1717, happen to a *Commander* of the *Order of Malta* : He had suffered for a long Time, from a like Accident, violent *Pains* in his *Head* and *Eye*, which were followed by a *Glaucoma*.

THIS

THIS *Disease* is sometimes produced by a *viscid Humour*, which creates Obstructions in the *Fund* of the *Eye*, and in the *Cristalline*, by which a *Gutta Serena*, and a *Cataract* without *Pain*, are formed, to which a *Glaucoma* succeeds.

OLD People are deemed subject to this *Disease*, because their *Cristalline* appears dry, which hinders them to see *Objects* perfectly, tho' they can distinguish them. I saw two Persons, who had their *Cristalline* so opaque, that they seemed to have true *Cataracts*, and that they could not see; these Persons, however, were able to read.

I do not take this *Dryness* of the *Cristalline* to be a *Glaucoma*, because the essential Parts of the *Sight* remain sound, whilst the *Cristalline* grows dry: In this State, the *Light* penetrates to the *Fund* of the *Eye*, finding a Passage round the *Cristalline*; so that the *Patients*, notwithstanding this *Opacity* of their *Cristalline*, can see and distinguish *Objects* sufficiently to read *Writing*. This *Disease* resembles a *Cataract*, more than a *Glaucoma*. If these Persons be attacked with a *Gutta Serena*, which may
come

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come very suddenly, the *Pupil* will be dilated ; and a *Glaucoma*, according to my Definition, will be formed.

THE *Prognostick* of this *Disease* is very fatal ; for, when it is once formed, Remedies are of no Service ; and, when one *Eye* is afflicted with it, the other is in great Danger.

WHEN this *Disease* proceeds only from the *Dryness* of the *Cristalline*, as in old Men, the *Sight* subsists often all their *Life*. 'Tis to these old Men, *Eye-bright Wine*, and other Preparations of that Herb, so much recommended by the *Antients*, are very serviceable.

I THINK myself obliged to undeceive the *Publick*, concerning a *Faët* related in some of Mr. *Woolhouse's Writings* ; he pretended, that the *Mother de St. Paul*, a *Nun* of *Hotel-Dieu*, had been attacked with an incurable *Glaucoma*, and that she did not see, after the Operation : But I can satisfy all Lovers of *Truth*, the *Fact* is here truly related. I saw the *Patient*, from the Beginning ; I remarked her *Disease* had all the *Signs* of a true *Cataract* : The *Iris* had its intire Motion. The Win-

ter before I performed the Operation, a violent *Defluxion* fell on that *Eye*, which dilated the *Pupil*, and partly destroyed the Action of the *Optick Nerves*; but, because she could see the *Shadow* of a *Hand* placed between her *Eye* and the *Light*, I consented to perform the Operation. I told her, she would see very little; she was content, and desired only to see enough to avoid hitting against every Thing, as she walked. I couched her *Cataract*, and she was dressed, as usual; she saw, with that *Eye*, more than she expected; for, a Year after the Operation, by the Help of *Cataract-Spectacles*, I made her see both *Letters* and *Figures* in a *Picture*.

A R T I C L E II.

Of a Shaking Cataract.

I SHALL say very little of the *Shaking Cataract*, for this *Disease* is incurable, and the Operation serves only to remove the *Deformity* of the *Eye*, and to abate the *Pains*. The *Cristalline* becomes like *Mortar*, and resembles that of a *fryed Whiting*. It rolls from one Side to the other, according

according to the different Movements of the *Eye* ; for this *Body* adheres to some *Ciliar Fibres*, which keep it suspended in the Middle of the *posterior Chamber*. In Process of Time, these *Fibres* break ; then the *Cristalline*, having no Support, passes, upon the least Motion, into the *anterior Chamber* ; from whence it must be drawn out, in the Manner which shall be taught, in the *Chapter* of the Operation of *Cataracts*.

C H A P. XVII.

Of the Causes of Cataracts.

CATARACTS proceed from *internal*, or *external Causes*. Those, who have hitherto wrote of this *Disease*, have not explained, in a satisfactory Manner, how it is formed. My Opinion is as follows :

THE first Thing, which happens in the Formation of a *Cataract* from an *internal Cause*, is the *Thickening* and *Viscosity* of the *nutritious Juices*, that flow into the *Vessels* of the *Membrane* which fixes the
Cristal-

Cristalline in the *Vitreous Humour*, and into the *Vessels* of the *Cristalline*. These *Juices*, by their *Viscosity*, stop the *Channels* thro' which they pass; then the Nourishment, necessary to preserve the Tone and Spring of these *Vessels*, cannot be duly supplied, the *Vessels*, which should convey it, being obstructed; for which Reason, the *Fluids*, which arrive latterly, not finding free Passage and Room to circulate, they stagnate, grow acrid, and so ferment; there ensues a total *Dissolution* of all the *Substance* of the *Cristalline*. This causes *Abscesses* and *purulent Cataracts*. If there be not a total *Dissolution* of the *Cristalline*, this *Humour* loses Part of its *Fluidity*, and is loosed, together with the *Membrane* that incloses it, from the *Vitreous Humour*; afterwards it acquires a hard Consistence; as it grows more solid, it advances towards the Hole of the *Pupil*, and is pushed forward by a *Serosity* collected behind it, whether it be the *Aqueous Humour* that glides into that Place, or whether the *Vitreous Humour* furnishes it, seeing the *anterior Chamber* of the *Vitreous Humour* appears chiefly filled with it. That a *Serosity* is gathered be-

tween

tween the affected *Cristalline* and the *Vitreous Humour*, this is a Proof; for, in the *Couching* a *Cataract*, if any Portion is loosed, it is pushed with Violence into the *anterior Chamber* of the *Eye*, as if it was violently forced by some *Humour* flowing from the Back-part to the Fore-part.

WHEREFORE I think, in the Beginning of *Cataracts* from an *internal Cause*, there is a *Dissolution* of the *Cristalline*, by which it grows soft, and becomes more or less fluid; for, when we attempt to couch a *Cataract*, before it is full ripe, the Needle passes thro' it, as thro' a thick *Cream*, and can never depress it; whereas, in the sound, natural State of the *Cristalline*, the *Needle* meets with a Resistance. We must then conclude, from this Difference, that the *Cristalline*, at first, becomes soft; and that there is a *Dissolution* of it, in the Beginning of a *Cataract*.

IT must not, however, be supposed, that all *Cataracts* are occasioned by a *Dissolution* of the *Cristalline*; for, in some, it grows hard and dry. This *last* Sort of *Cataracts* may be couched, in a short Time after it is formed.

IT is very difficult to explain, how the *Cristalline* acquires this Consistence, in so short a Time ; yet it is not surprizing, since it becomes like *Mortar*, in the *Shaking Cataract*.

THE Colour of the *Cristalline*, in this Species of *Cataracts*, draws upon the Brightness of *Quicksilver*, and somewhat like the Colour of *Window-glass*. I cannot compare it, on Account of its Consistence, to any Thing better than to *Talk*; for, in *couching*, when it is pressed by the *Needle*, it breaks off in *Scales*, as that Substance does ; this does not hinder the Success of the Operation.

THE *external* productive Causes of *Cataracts* are *Strokes* received on the *Eyes*, and the adjacent Parts ; likewise *Falls*, which give a great Shock to the *Head* ; *Strokes* received about the *Orbit*, which cause a great Concussion in the *Eye* ; *Strokes* in the Middle of the *Globe*, which make the *Cornea* bend inwards ; these *Strokes* divide the *posterior* and *lateral* Parts of these *Membranes*, which inclose the *Humours* of the *Eye*, so that the *Membrane*, which joins the *Cristalline* to the *Vitreous Humour*,

Humour, is lacerated, and, by its Rupture, occasions the Loofing of the *Cristalline*.

THESE Accidents come either by *Small Shot*, as in the above-mentioned Case of the *Man*, called *Constantine*; or they happen by an infinite Number of other Means too tedious to describe. I shall relate some Cases: One of them happened fix Years since, at the *Hotel of Asturias Rue de Sepulchre* in *Paris*, to a young *Nobleman*.

ONE of his *Friends* had struck him undesignedly, in the Middle of his *Eye*, with the End of a small *Switch*. I was not called, till the Day after the Accident; I found the *Cristalline* loosed and floating in the *Aqueous Humour*, which was already become opaque, though neither *Scratch* or *Wound* appeared on the Outside of the *Eye*. He could only discern the *Light*, with that *Eye*. Boys, that throw *Squibs* in the Streets, often cause *Cataracts* in People's *Eyes*, as they go along: There's something, about the Bigness of a *Pea*, in the *Squibs* to ram them; when this Part strikes the *Eye*, it produces a *Cataract* by loosing the *Cristalline*, in the forementioned Manner. About four Years ago, a like Accident happened,

pened, in the *Rue de la Mortellerie* in *Paris*, to a *Corn-Merchant's Son*, about twelve Years old. The *Cristalline* was instantly loosed, appeared opaque and whitish; the next Day after the *Stroke*.

THE *Stab* of the Point of a *Scissars* may instantly loose the *Cristalline*; a few Days since, a like Accident befel a young Girl, twelve Years old.

THE Point of her *Scissars* had struck and penetrated the *Cornea Transparent*; the next Day, when I examined her *Eye*, I found the *Cristalline* loosed and opaque.

A *Pin*, or any Thing that can prick the *Globe* of the *Eye*, may produce a *Cataract*; as happened, last Winter, in the *Community* of the *Nuns* of *St. Genevieve quay de la Tournelle*: As one of them was shaking her *Apron*, a *Pin* run into her *Eye*, at the Place the Puncture is made in couching a *Cataract*. It entered very deep, and had pricked the *Cristalline*; violent Pains ensued, and, when they were appeased, I discovered a *Cataract* to be formed.

I SAW another Instance of a *Cataract* proceeding from the *Blow* of an *edged Weapon* on the Middle of the *Pupil*. The *Cristalline* was loosed from the *Vitreous*

R. Humour,

Humour, and placed in the *Posterior Chamber* of the *Eye*, at the Place where *true Cataracts* lie; the Point of the *Weapon* past through the *Cornea*, penetrated to the *Cristalline*, and wounded it; so that the *Cataract* was continuous to the *Wound* of the *Cornea*, by the Help of a *whitish Matter* which flowed from the *Cristalline*. It was also joined to the *Cornea*, at the Place of the inner *Cicatrice* of the *Wound*. Three Years after the *Stroke*, the *Patient* applied to me; I examined his *Eye*, found the Parts in the *Fund* to be sound, and that he would see, if his *Cataract* was couched; for which Reason, I undertook the *Needling* of it: The upper Part of the *Cataract* gave way and was depressed; but, as I observed it firmly adhered to the *Cornea Transparent*, and that it drew the *Cornea* with it, I could not break it with my *Needle*, and so could not depress it below the *Adherence*. At that Time, I made use of the *round Needle*; had I then, as I now have, a *Needle edged and flat*, I could have cut the *Adherence* with its *Edge*, and perfectly succeeded. It may, perhaps, be objected that these Sorts of *Cataracts* which come by *Strokes*, and loose the *Cristalline*,

are

are only a *whitish Juice* extravasated into the *Aqueous Humour*, by the Rupture of some *Vessels* of the Globe, and placed behind the *Iris*; so that I am mistaken in supposing this *whitish Juice* to be the *Cristalline*.

To this I answer: The Distinction is easily made, provided the *Blow* has not tore some of the *Blood-vessels*; for, if the *Eye* be inspected, a few Days after the *Blow*, the *Cataract* may be seen, through the Hole of the *Pupil*, of a round convex Form as the *Cristalline* is; it has even some Consistence, which it would not have, if it was only a *whitish Juice* extravasated.

BESIDES, this *whitish Juice* cannot be discharged into the *Aqueous Humour*, but by the Rupture of some *Vessels*, so that it ought to be mixed with *Blood*; but, in order to prove this *Cataract* is not occasioned by a *whitish Juice* poured into the *Aqueous Humour*, it is never mixed with *Blood*. Indeed, when the *Vessels*, or *Membranes*, are tore by a *Blow* which has loosed the *Cristalline*, some *Blood* appears in the *Aqueous Humour*, but never any is seen in the *Cristalline*, as there should be, if what I take to be the *Cristalline* is only a *whitish*

Juice; for, when this *Blood* is dispersed by proper Remedies, the *Cataract* is seen floating in the *Aqueous Humour*, without any Tincture of *Blood*; we must therefore conclude that this Sort of *Cataract* is not occasioned by that pretended *Juice*, and that it is certainly the *Cristalline* loosed from its Socket, for it often falls spontaneously to the Bottom of the *Eye* in the same Place to which the Operation reduces it; and then the *Patients* cannot see to read, but with *Cataract-Spectacles*, which is a manifest Proof, that it is the *Cristalline* which is loosed, since these *Spectacles* are designed to supply it.

C H A P. XVIII.

Of the Signs of Cataracts.

WHEN a *Cataract* begins, and the Channels of the *Cristalline* are obstructed, the *Light*, that enters the *Eye*, falling on the obstructed *Vessels*, makes a *Shadow* in that Part of the *Eye* in which the *Pencils* of *Light* should be projected; hence come these *Flies* and *Cobwebs* in the Air before the *Patient's Eyes* floating here
and

and there, according to the Motions of the *Eye*; these *Shadows* assume different Figures, from the Number of the obstructed *Vessels* of the *Cristalline*, and according to their different Disorders, as the Appearance of *Hairs*, *Dust*, *Cobwebs*, *Flies*, &c.

IT is difficult to know a *Cataract*, in its Beginning, for the preceding *Signs* are almost the same with those of other *Diseases* of the *Eyes*, for these *Flies*, or *Shadows*, may be formed by the Relaxation of the *Vessels* of the *Retina*; as they are, in some Places, separated from the *Choroides*, the *Light* cannot make its Impression on these Parts, so that a Sort of *Shadow* is painted on the *Choroides*.

THERE is likewise a *false Suffusion*, attended with the Appearance of an infinite Number of *Atoms* in the Air, but the *Sight* is not shortened, in either of these *Diseases*.

THESE are the certain *Signs* of a Beginning *Cataract*: The *Patients* perceive, in a short Time, the *Sight* of their diseased *Eye* to grow much shorter; they cannot see as distinctly at a Distance, as they could before their *Eye* was attacked; they find their *Sight* sensibly diminish, every eight Days.

BUT, as soon as the forementioned Dissolution of the *Cristalline* supervenes, the *Whiteness* and *Opacity* may be perceived to sink into the *Posterior Chamber* of the *Eye*, where the *Cristalline* is lodged; then the Inspection of the *Eye* clearly shews the *Cataract*, which could not be known before, but from the Account the *Patient* gave of the Diminution and Weakness of his *Sight*.

HAVING now related the *Signs* by which a *Cataract* may be known, we must propound those which distinguish the different Degrees of its Maturity: These *Signs* are *three* in Number; *first*, when the *Cataract* appears, in every Part, of an equal *Opacity*, for, when the *Opacity* is not equal, looking through the Hole of the *Pupil*, some Places appear more solid and opaque than others.

THE *second Sign* is: The *Patient* being placed with his Back to the *Light*, and an *Object* presented to him, if he can distinguish it, his *Cataract* is not full ripe, unless it be one of those *Cataracts* in which the *Cristalline* remains in the Middle of the *Posterior Chamber* of the *Eye*.

THE *third* and most certain *Sign* is:
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Let the *Operator* examine the diseased *Eye* exposed to the *Light*; if he finds the *Cristalline* of an equal *Opacity*, let him close the *Patient's Eyes* with his *Thumbs*, make a circular *Friction* on the *upper Lid* of that *Eye* which has the *Cataract*, and, keeping the other *Eye* shut, let him open the *Lids*; if he finds the *Light*, which falls on the *Pupil*, makes the *Iris* contract, and that, altho' exposed to the same *Light*, it dilates to the Half, or the Quarter, of that Degree to which it was contracted, he may be assured the *Cataract* is ripe. I do not know any *Author* who has described the *Signs*, by which a *Membranous Cataract* may be distinguished from that Sort produced by the *Alteration* of the *Cristalline Humour*; yet these *Gentlemen*, who admit of none, but *Membranous Cataracts*, think this *Distinction* very necessary, to prevent the mistaking one for the other in the *Operation*. The *Distinction* may be thus made: If it be a *Membranous Cataract*, it will appear flat, and a *Hollow* may be perceived in the Middle of it; whereas, in that produced by the *Cristalline*, if you look through the Hole of the *Pupil*, you may distinguish a *lenticular Form* more ele-

vated in its Middle, than in its Circumference.

IT is not sufficient to have described the *Signs* which denote the Maturity of a *Cataract*; it is likewise necessary to speak of those by which we may be assured the *Patients* shall see, after the *Cataract* is couched. These *Signs* are taken from the Disposition of the *Eye*, and the Nature of the *Cataract*. The *first* Point is to examine, whether the Organs of *Vision* be sound and well disposed: This may be known by the Facility the *Iris* has of contracting and dilating, as we have already observed; for, if there be no Motion in the *Iris*, it is a certain *Sign*, the *Patient* will not see, tho' the *Cataract* be couched, except it was occasioned by a *Blow* that had wounded the *Iris*; for then, if a *Hand* be placed between the *Eye* and the *Light*, the *Patient* sees the *Shadow* of the *Hand*; and, when the *Hand* is withdrawn, if he perceives a certain *Glaring* of the *Light*, it is a Proof the *Bottom* of the *Eye* is sound.

As to the *Prognostick Signs* deduced from the *Eye*: In case the affected *Eye* be either bigger, or lesser, than the sound *Eye*, it is a bad *Sign*; for the excessive Size of
the

the *Globe* clearly shews, that whatever is extravasated in the *Eye*, and has reduced it to that preternatural State, has likewise forced the essential Parts of *Vision*, and that the *Eye* is attacked with a *Gutta-Serena* through the over Extension of its *Nerves*.

ON the contrary, if the *Globe* be emaciated, it is also a bad Sign; for the Diminution of the *Globe* proves, that the *Nervous Parts* are humected by a sharp, saline *Juice*, which has decayed them, and intercepted the Course of the *Spirits* to the *Eye*. As to the *Prognostick Signs* drawn from the *Cataract*, they are *two-fold*; some regard its *Age*, and some its different *Colours*.

WITH Regard to the *Age*, we must observe; as the *Membranous Cataracts* grow old, they become adherent either to all the *Posterior Parts* of the *Iris*, or only to some Points of its Circumference; on this Difference depend the Changes which then happen to the *Pupil*, such are certain preternatural *Colours*, or *Wrinkles*, which may be seen in it.

THE Difficulty, or rather Impossibility, of destroying these *Adherences* engaged several *Oculists* to lay the Operation intirely aside,

aside, though it is very practicable, by cutting these *Adherences* with an *edged Needle*.

LET the *Cataract* of the *Cristalline* be ever so old, it never adheres to the *Iris*; indeed, it comes so very near it, that it destroys almost all its Movement. Of whatever *Age* a *Cataract* be, the *Operator* may safely undertake to couch it (though several *Authors* have asserted the Impossibility of Success) provided he has Dexterity enough to cut the *Fibres* which oppose its Depression, without damaging the Parts to which they adhere.

IT does not seem improper to say somewhat of *Barred Cataracts*. We call that Sort a *Barred Cataract* which has its Forepart crossed by one or more *Fibres*; these *Fibres* are variously placed. As these *Cataracts* seldom attain to a Consistence, which will admit of their being surely couched, there is often found in the Body of them a *whitish* and sometimes a *yellowish Matter*, which runs out instantly in the Operation, and, mixing with the *Aqueous Humour*, offusks it. This *Matter* commonly acquires a certain Consistence, and, remaining in the *Aqueous Humour*, it obstructs

structs the Passage of the *Rays* of *Light*, as much as it had done before it was couch-ed: Then, if it does not fall of its own Accord to the Bottom of the *Posterior Chamber*, a second *Needling*, six Weeks after the first, is necessary, in order to depress this new Sort of *Cataract*, which then will have a Consistence sufficient to bear the second *Needling*.

As to the *Colours* of *Cataracts*, I am convinced from Experience, of whatever Colour they are, that the Operation always succeeds, provided they have the *Signs* of Maturity, and there is a good Disposition of the *Eye*; it may, however, be observed that, of all Colours, the *Blue-gray* succeeds best; those of a *Sky-coloured White*, these of a *Shining Argentine* Colour, somewhat like that of *Window-Glass*, and the *White* like that of *Sea Water* are to be preferr'd, in the next Place. The *Ashes-coloured*, these of a *leaden* Colour, the *Reddish* or *Chestnut-coloured* or those of a *Snowy White* are difficult and dubious, in their Success; as likewise those which have their Fore-part covered with *Blood-vessels*.

THE *false Cataracts*, in which the Operation serves only to remove the Deformity,

mity, are those which are *white* and like *Mortar*, or which resemble white polished *Ivory*, or a *Hailstone*.

C H A P. XIX.

Of what is to be done before the Operation of the Cataract.

AS I have described the Nature of a *Cataract*, its different *Causes*, the *Signs* of its Maturity, and those which foretell the Success of the Operation, it now remains to examine, whether the Patient be in a Condition to undergo the Operation; for, if he has a *Head-ach*, *Fever*, or any other Disorder, they must be remedied, before the Operation. Above all, you must avoid to undertake it too soon, for some *Cataracts* are four Years, others five, before they are full ripe. The Misfortune is, Persons, afflicted with this *Disease*, are desirous to see, and have not Patience to wait so long a Time. There are likewise *Operators* who, for the sordid *Lucre* of Money, couch them, as they find them ripe, or not ripe. They flatter the
poor

poor *Patients* to restore their *Sight* speedily ; these are easily seduced by the pleasing Bait ; and the Desire of *Gain* prevails with the *Operator*, who prefers his present *Interest* to his future *Reputation*, and hazards a doubtful Operation, lest he should lose his present *Practice*.

A *Cataract* is like a *Fruit* which must be let to ripen on the *Tree* ; if it be gathered, before it is ripe, the *Stalk* must be broke ; but, when it is full ripe, it is easily plucked from the *Tree*, and sometimes falls of its own Accord. If the Operation be anticipated, or performed, before the *Cataract* is full ripe, the *Needle* either passes, without Success, through the *Body*, which is to be depressed, by Reason of its Softness, or the *Ciliar Fibres* are not dry enough to be broke with ease by the *Needle*, so that they are forcibly tore ; this violent Motion is communicated to the rest of the *Eye*, and brings on a terrible Defluxion that often destroys the *Sight* ; though this Accident should not happen, we are still obliged to a second *Needling*, in order to depress what remained after the first Operation. The Operation of the *Cataract* is momentous, and may have fatal Consequences.

quences. Its Success requires a great Dexterity in the *Operator*, and an intire State of *Mind* and *Body* in the *Patient*; he must be prepared before the Operation, by *Bleeding*, *Bathing*, cooling *Broths*, and light *Purges*.

THE most temperate Weather must be chose, as the *Spring* and *Autumn* Seasons; but the *Spring* is preferable, because the fine Season follows, which is otherwise in *Autumn*. I know this Operation may be performed, at any Time of the Year; but the Time I proposed is always the most convenient for the *Patients*.

A FINE serene Day must be chosen, for moist Weather is bad for the *Patients*, the *Glandula Lacrimalis* furnishing a great Discharge of *Serosity*, which draws very obstinate Defluxions to the *Eye*.

THUNDER is likewise very prejudicial, in the first Days of the Operation, on Account of the violent Emotion it excites in the *Humours* of the *Eye*.

C H A P. XX.

Of the Manner of performing the Operation of the Cataract.

ALL the forementioned Precautions being observed, the well *Eye* must be covered with a *Compress*, kept on by a simple Bandage ; let the Patient be placed fronting the *Light* ; the *Operator* must be seated directly before him, and somewhat higher. They must be both so placed, that the *Head* of the *Operator* may not shade the *Eye* which has the *Cataract* ; let him put the *Patient's* *Legs* between his own, in order to be very near him ; let an *Assistant*, placed behind the *Patient*, lay his *left Hand* on his *Head*, and his *right* under his *Chin*, (supposing the Operation is to be performed on the *left Eye* ;) then, leaning the *Patient's* *Head* on his *Breast*, let him hold it firm, that the *Patient* may not give it any Motion. Let the *Operator* raise the *upper Eye-lid* with the *Fore-finger* of his *left Hand*, and let him keep the *lower Lid* down with his *Thumb* ; then let him take his *Cataract-Needle*, which must be flat and edged, for Reasons to be given hereafter ;

after; let him hold it in his *right Hand*, almost in the same Manner a *Writing-pen* is held, so that his *middle Finger* may bear on that Part which is distant, about a Finger's Breadth from the End of the *Port-Needle*. Afterwards let him lay his *Ring-Finger* and his *little Finger* on the *Temple*, that Side he is to operate, desiring the *Patient* to turn that *Eye* towards his *Nose*; then let him make his Puncture in the *White* of that *Eye*, about half or, at most, a Line's Distance from the *Cornea Transparent*, avoiding the *Blood-vessels* on the *Conjunctiva*, and turning the Point of the *Needle* from the *Iris*, to hinder its being hurt. As soon as the Point of the *Needle*, which ought to enter *Horizontally*, on Account of its *Double-edge*, has pierced the *Membranes*, let him direct it strait towards the Back-Part of the *Cataract*, without turning his *Needle* round. He must then push it forwards, till the Point arrives beyond the Middle of the *Pupil*, which may be known by pressing the Back-part of the *Body* of the *Cataract* with the Point of the *Needle*: And, to avoid damaging the *Membrane* of the *Vitreous Humour*, he must likewise direct the Point of his *Needle* towards the

Body

Body of the Cataract. Afterwards let him raise the Point of his *Needle* to the upper Part of the *Cataract*, which he must gently depress below the *Pupil*, as near as he can, to the Back-part of the *Iris*. He must then raise his *Needle*, without drawing it out; and, to be assured that all the Injections of the *Cataract* are destroyed, let the *Patient* cough, and, if the *Cataract* springs up again, it must be instantly depressed; if it does not rise again, let him turn the Point of his *Needle* down, and press once more on the *Body* of the *Cataract*, avoiding to prick the *Membrane* of the *Vitreous Humour*, for, if this *Humour* should be loosed, the Loss of *Sight* may ensue; let him close the *Eye-lids*, and draw out his *Needle* gently.

IF the Operation is to be performed on the *right Side*, the *left Hand* must be used. The *Assistant* must likewise place his *Hands*, in a Manner contrary to that we have described.

WHEN the Operation is finished, let a *Compress* be wetted in a Mixture of common Water just warmed, ten Parts; *Spirit of Wine*, one Part; let the *Compress* be squeezed, that some of this Mixture may

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drop on the Puncture ; let the *Compress*, and another over it, be laid to the *Eye* ; the well *Eye* must be dressed in the same Manner. These *Compresses* must be kept on by a simple Bandage, which must lie only on the upper Part of the *Compress* that is on the *Eye-brows* ; let the two Ends of the *Rollers* be pinned to the *Patient's Night-cap*.

THE *Patient* must be put to Bed, with two or three *Pillows* at his *Back* to keep him raised, and as it were sitting up ; the *Bed-curtains*, *Window-curtains*, and *Window-shutters* must be shut, to hinder the least *Light* coming into the *Room* ; he must be left quiet, neither must he speak to any one ; the *Compresses* must be sprinkled, every Hour, with the same Mixture warmed, and, at this Time, the *Light* must be placed behind the *Patient*, so that it may not affect his *Eyes*. Three Hours after the Operation, let him take a *Broth* ; and, three Hours after the *Broth*, let him be let Blood. For three Days, he must live after this Manner, taking a *Broth* every three Hours ; about the fourth Day, he may eat a *stewed Soupe*, and continue it to the seventh

seventh or eighth Day, then he may be allowed to return to *Meat*.

THE *Compresses* must be taken off the *Eye* Morning and Evening, and some of the Mixture of Water and *Spirit of Wine* warmed must be put into the *Eye*. About the fifth Day, the Dressing may be removed from the *Eye* which was not couched, provided no Accident has happened to the other; if the *Patient* can see with that *Eye*, let a dry *Compress* be laid to it, for five Days; but, if he cannot see with it, let it be exposed to the Air, without applying any Thing to it.

NINE Days after the Operation, the *Eye*, which was couched, may be covered with a dry *Compress* pinned to the *Cap*, that the *Eye* may be accustomed to receive the *Light*; under the *Compress*, a small *Light* must be admitted into the *Patient's Chamber*, such as may suffice for People to see each other, and the *Eye* must be habituated gradually to the *Light*.

SOME Persons cannot remain, lying on their *Backs*: In this Case, I have them placed, with their *Feet* raised on a *Stool*, in an *easy Chair* surrounded with *Curtains*, and there they remain four or five Days;

then I order them to lie down, when they can keep a-bed, letting them sit up, or lie down, as they find themselves wearied by the same Situation. Some are so heated, by lying on their *Backs*, that, were they kept long so, they would have a *Fever*, which might draw fatal Defluxions to the *Eye*; for which Reason, I desire them to rise, in four and twenty Hours, and order them to be placed in an *easy Chair* by their *Bed-side*, with the *Bed-curtains* drawn round them. Care must be had, in lifting them up and down, that they always keep their *Head* raised, and that they make no Effort in these Removals.

THE *Needles*, for the Operation of the *Cataract*, are different; they are either *flat* or *round*. The *flat* ones enter better, and with more Ease into the *Eye*. Some would have them *edged*, as these which *Surgeons* use. I have invented a very convenient Sort, their Point is like that of a *Lancet*, so that their *Edge* is not above the Length of a Line, from whence it ceases to be *flat*, and becomes *round*. The Point must make the Aperture, as wide as is necessary for the *Needle* to be pushed forwards, or drawn back in the Orifice, without

without any Impediment from the *Membranes*, as we are sometimes obliged to do, in order to depress some Parts of the *Cataract*, which lie, more or less, remote in the *Eye*.

C H A P. XXI.

Of the Manner of Operating, when the Cataract lies in the Chamber of the Aqueous Humour.

WHEN a *Cataract* has passed into the *anterior Chamber* of the *Aqueous Humour*, a particular Operation must be performed; but, before I explain the Method of doing it, I shall shew, by what Means a *Cataract* may pass thro' the Hole of the *Pupil*, and be lodged between the *Iris* and the *Cornea Transparent*.

THREE Sorts of *Cataracts* pass thro' the Hole of the *Pupil*: In the *first*, the Consistence of the *Cristalline* is soft; in the *second*, it is hard and concrete, like a *Stone*; in the *third*, it is partly soft, and partly petrified. When it is soft, the *Aqueous Humour*, which lies behind this Body, thrusts it forwards, and fixes it in the

Pupil, after the Manner I have described, when I treated of *Cataracts* in general : But, when this Body is hard, as in the *Shaking Cataract*, it passes, at once, thro' the Hole of the *Pupil*, upon the least Effort made in bending the *Head*, for Instance, in blowing a *Fire*, &c. This *last* Case may happen, in a *Cataract* that has been couched three or four Years.

WHEN you design to perform this Operation, to draw out the *Cristalline* which has passed in the foregoing Manner, the *Patient* must be seated in a *Chair*, with his *Eye* fronting the *Light* ; open both his *Eye-lids*, with your *Thumb* and *Fore-finger* ; then, with a sharp-edged *Lancet*, divide the *Cornea Transparent*, a little below the Middle of the *Pupil* : You must continue your Incision *transversally*, from one Side of the *Cornea* to the other, in such a Manner, that you do not leave unsevered, of each Side, above half a Line's Breadth of the *Cornea Transparent*. Then introduce a fine small *Scoop* thro' the Orifice, convey it behind the *Cristalline*, and, with it, draw out that *Humour*, thro' the Incision made in the *Cornea*. Lay a *Compress*, wetted in a *Defensive*, to the *Patient's*
Eye,

Eye, and dress the *Eye*, as in a *true Cataract*; afterwards let the *Patient* be carried to his *Bed*, and laid on his *Back*; his *Head* must be raised a little; the next *Day*, you will find the *Wound* cicatrise, from a *Scar* no broader than a *Hair*. Altho' I have formed many of these *Operations*, I shall, however, confine myself to *three Examples*, viz. one of each Sort of *Cataract* which is lodged in the *anterior Chamber* of the *Eye*.

THE *first* was in the *Year* 1707, in *Presence* of M. *Mery*, a *Member* of the *Royal Academy of Sciences*: I performed it on a *Merchant* of *Sedan*; he came to *Paris*, on *Account* of a *Shaking Cataract*, which had passed, thro' the *Hole* of the *Pupil*, into the *anterior Chamber* of the *Aqueous Humour*. The *Cataract*, by pressing very much the *Iris*, occasioned violent *Pains* in his *Head*, attended with the *Want* of *Sleep*, for three *Months* before. At that *Time*, I never had heard of the like *Operation*; but, reflecting that I often opened the *Cornea*, to discharge the *Matter* of an *Abscess* lodged behind it, I concluded I might safely do the same, in *Regard* of a solid *Body*; and I performed the same *Operation*. The *Body*, which I

drew out of the *Eye*, altogether resembled *Mortar*; I ordered the *Patient* to lie on his *Back*: The next Day, I returned thither, along with M. *Mery*, and we were informed the the *Patient* slept very well; which he had not done, for a long Time before. The *Wound* was cicatrised, and the *Aqueous Humour*, which had run out, in the Operation, was intirely repaired.

THE *second* Observation was in the Year 1708, from an Operation which M. *Petit*, a famous *Surgeon*, and now a *Member* of the *Royal Academy of Sciences*, had performed on a *Priest*: His *Cristalline*, upon some Effort he had made, some Years after the *Couching* of a *Cataract*, had passed thro' the Hole of the *Pupil*, and was lodged between the *Iris* and the *Cornea Transparent*. M. *Petit*, who had this *Priest* under his Care, desired me to be present at the Operation; at which M. *Mery* assisted likewise. M. *Petit* made a Puncture in the *Cornea*, with his *Needle*, then slit it with his *Lancet*, and took out the Body, thro' the Aperture; it was found to be the *Cristalline*. The *Priest* was, soon after, perfectly cured. I met him, in *Paris*, a Year after the Operation,

tion, and have seen him read very well, with *Cataract-Spectacles*. This Fact, tho' related to the *Academy of Sciences*, was, however, contested by M. *Woolhouse*, who pretended, in one of his *Writings*, that the *Priest* absconded, lest he should be seen and examined by him; I hope he will excuse my Citing his *Name*, for I think myself obliged to justify the *Truth*, as being one of the *ocular Witnesses* of this Operation. M. *Mery* had it, and the precedent, inserted in the *Memoirs* of the *Royal Academy of Sciences*, for the Years specified.

My *third* Experiment was in the Year 1716, on a poor Man living in the Suburbs of *St. Germain Rue Cassette*: He had received a Hurt, in his *Eye*, the *Cristalline* was loosed, and had passed thro' the Hole of the *Pupil*, between the *Iris* and the *Cornea Transparent*. I made an Aperture in the *Cornea*, thro' which I drew out this Body, that was partly like the *White* of an *Egg*, and partly concrete, like a *Stone*; it adhered to the *Cornea*; I cut the *Adherency*, and took out the *Cristalline* that held by one of the longer *Ciliar Fibres*, which I cut, with my *Scissars*, as low as possible.

possible. The Operation succeeded perfectly, and the *Patient* was soon cured.

C H A P. XXII.

How to prevent the Accidents which attend the Operation of the Cataract.

IT must not be supposed, that this Operation is always performed, without any bad *Accidents*, whether they arise from the Difficulty of Couching the *Cataract*, or from some Motions the *Patient* gives his *Eyes*, in the Time of the Operation: There are, it is true, some Operations, in which a light Pressure, with the Flat of the *Needle*, on the Body of the *Cataract*, separates the same; and it falls almost of its own Accord, as a *Nut* full ripe, which is easily separated from its Husk. There are, likewise, some Operations liable to very great Difficulties. The *first* Caution is, to prevent the Extravasation of *Blood*; for, as the *Needle* is introduced, some of the *Vessels*, spread on the *Conjunctiva*, may easily be opened. This *Blood* glides into the *anterior Chamber*, mixes with the *Aqueous*

queous Humour, and offusks it; this renders the Operation more difficult to the Operator.

WHEN this Accident happens, you must endeavour, with all Speed, to couch the *Cataract*, before the *Blood* has filled all the *Chamber*: In which Case, you must withdraw your *Needle*, and leave off Working, at that Time, lest you should damage the *Patient's Eye*, by operating, when you cannot see into it.

THE *second* Difficulty is, when the *Cataract* is of that Species, called a *Milky*, or *Cheesy Cataract*, for the *Needle* passes easily thro' it, and divides the Body of the *Cataract* into several Parts of a different Consistence: If these Parts are solid enough, they may be subjected by moving the *Needle*, and pressing them down gently; but, if these Parts are too soft, you must lay aside the Operation, lest, by over-fatiguing the *Eye*, you bring on other bad *Symptoms*. This *second* Inconveniency always occurs, when the *Cataracts* are not full ripe. I have couched, with Success, *Cataracts* of five and twenty Years: This proves the Mistake of some *Oculists*, who tell their *Patients*, in order to engage them

to undergo the Operation, before they are full ripe, that, if they wait any longer, their *Cataract* will become adherent, and then it cannot be couched; a bad Precaution, which has rendered the Operation useless to many *Patients*!

THE *third* Difficulty is, when, in couching the *Cataract*, nothing is found, but a *Cystis* filled with Matter; as soon as the *Needle* presses this *Cystis*, it opens, and discharges into the *Aqueous Humour* a *whitish Pus*, which dims it, and hinders the *Operator* from seeing the *Membrane* which inclosed this Matter, so that he cannot finish the Operation. He must, notwithstanding, move his *Needle*, in the same Manner as if he had a *Cataract* to couch; and he must endeavour to place the *Cystis* below the *Pupil*. Tho' the *Patient* cannot see clear, let him draw out his *Needle*. The more solid Part of the Matter falls to the lower Part of the *Eye*; the more fluid Part reproduces a Sort of *Membrane*, which adheres to the *posterior Circumference* of the *Iris*, towards the Place the *Iris* joins the *Choroides*: Six Weeks, or two Months after, a second Operation is performed, in order to depress it; then the *Patients* can see again.

I PERFORMED *two* such Operations on both the *Eyes* of *Father Saunnier*, a *Canon Regular* of *St. Genevieve*: The *first* was in the Year 1713, some Days after *Easter*; in that *Eye*, I depressed the *Cystis*, which contained a *purulent Matter*. A great Quantity of *whitish Matter* was discharged into the *Aqueous Humour*, and of-fused it; this, however, did not hinder me to depress the solid Body, which in-closed the *Matter*. This *purulent Matter* became more solid, and formed a Sort of fine *Membrane*. Six Weeks after, I nee-dled his *Eye* a second Time; and the *Pa-tient* saw very well, after this second *Nee-dling*. I performed my *second* Operation in the Year 1715; for, as I met with this Accident in the former, I was in Hopes that, by delaying the Operation for two Years, the *Cataract* would acquire more Solidity; the same Thing, however, hap-pened in the Operation, and I was obliged to a second *Needling*, which had likewise very good Success.

WE may infer, from what has been now observed, that, by delaying the Ope-ration in this Species of *Cataract*, we must not wait, till they come to a full Ripe-ness.

ness. After the first Operation, the fluid Part, which was extravasated in the *Aqueous Humour*, forms a Sort of *Membrane*, which we are obliged to depress, six Weeks after the first *Needling*.

THE *fourth* Difficulty is, when, in couching a *Cataract*, it enters into the *anterior Chamber* of the *Eye*, and passes thro' the Hole of the *Pupil*. This happened to me, in an Operation I performed on a *Woman*, in the *Rue St. Honore*; M. *Petit* assisted. As soon as I pressed the *Cataract* with my *Needle*, a glutinous *Matter* emptied itself into the *Aqueous Humour*, and was carried, with great Violence, into the *anterior Chamber* of the *Eye*, between the *Iris* and the *Cornea Transparent*. I continued to operate, as long as I could; but, not being able to bring back the glutinous Matter which had flowed into the *anterior Chamber*, I was forced to draw out my *Needle*. Some Months after, all that *Matter*, which had glided between the *Iris* and the *Cornea Transparent*, repassed thro' the Hole of the *Pupil*, into the *posterior Chamber*; and, in some Time after, all that fluid Part was sunk below the Back-part of *Iris*; then the *Patient* could see clear, tho'

tho' she had not, immediately after the Operation.

WHATEVER passes, during the Operation, thro' the Hole of the *Pupil*, if it be of sufficient Solidity, the Point of the *Needle*, which is already in the *Eye*, must be pushed thro' the Hole of the *Pupil*, without touching the *Iris*; then pierce that Body of the *Cataract* with the Point of your *Needle*, bring it back to the *posterior Chamber*, and place it, where it is usually placed.

A *fifth* Difficulty occurs, when the *Cataract* adheres to certain *Filaments*, springs up again, after it is depressed, as soon as the *Needle* is raised, and returns to its first Place, making, as it were, a Sort of *Draw-bridge*. When this happens, you must raise your *Needle* a little, pierce the Body of the *Cataract* with it, and push it to the Side opposite to the Puncture. By this Method, the *Filaments*, on that Side the *Needle* enters, are broke, and the *Cataract* is depressed: Neither can it rise again; for the few remaining *Filaments*, which adhere, on the opposite Side to the Body of the *Cataract*, have not Strength sufficient to raise it, nor to resist the Weight
of

of the *Cataract*, which draws them down.

THE Case, now related, happens often, in the Operation; for, when the *Needle* presses the *Cataract*, the *Filaments*, to which its upper Part adheres, break easily, whilst these, on both Sides, only give Way; so that, as soon as the *Needle* ceases to press down the *Cataract*, it rises by Means of these *lateral Filaments*, which, at first, had only given Way: Wherefore, as I have already observed, when you pierce the Body of the *Cataract*, push it, as far as you can, to the opposite Side; afterwards press it down; then bring it towards the Puncture, not drawing back your *Needle*, but raise the Handle of it, so that the Point, which is in the Body of the *Cataract*, may reduce it below the *Pupil*, where it should be placed.

IT happens sometimes, when the *Needle* is raised, that the Body of the *Cataract* sticks to its Point: In this Case, turn the Point down, and raise a little your two *Fingers* which rest upon the *Temple*, and give a light dextrous Blow with them on the *Temple*; as this causes a Shaking in the *Needle*, it makes the Body, that hangs to it, fall off its Point.

IT must be observed, that all these *Adherences* of the *Cataract*, which render it so difficult to be couched, are some *Ciliar Fibres* adhering to the *Iris*, and to the *Membrane* which covers the *Cristalline*; they are called, by M. *Antoine*, the *Concomitants* of a *Cataract*.

As to the Manner of *breaking to Pieces*, and, as it were, *mincing* a *Cataract* with the *Needle*, this is a very pernicious Method, and never to be practised, but when you are mistaken in the Maturity of the *Cataract*.

THE foregoing *Discourse* shews, this Operation is not easy to be performed; it requires a steady, light *Hand*, the *Operator* must be prudent, and cautiously resolute; besides a great Capacity to couch the *Cataract*, he must likewise have Skill to handle his *Needle*, according to the various *Accidents* which may occur; for, of twenty *Cataracts*, which one may couch, two shall scarce be found intirely alike.

WHEN the *Needle* is in the *Eye*, Care must be had not to draw it with Violence forwards, for that Motion damages the Parts of the Bottom of the *Eye*, and causes very great Defluxions. The *Operator* must

be very attentive to the different Motions the *Patients* sometimes give their *Eyes*, in order to guide his *Needle* according to these Motions, otherwise he may pierce the *Iris*, cut the *Fibres* of its Circumference, and, in a Word, destroy the *Patient's Eye*.

THESE *Gentlemen*, who admit only of *Membranous Cataracts*, say, it is of great Consequence to know the exact Seat of the *Cataract*; they assert likewise, that those, who are of a contrary Opinion, damage the sound *Cristalline*, when they introduce the *Needle* to perform the Operation, and that the *Patient's Sight* is in great Danger of being lost. To this I answer: *First*, That we very seldom meet with *Membranous Cataracts*, and, of a hundred one may couch, there shall hardly be found one or two, without an Alteration of the *Cristalline*. In the *second Place*, if the Method I proposed, to introduce the *Needle* into the *Eye*, be followed, it is impossible to prick the *Cristalline*, unless it be affected, or to damage the *Vitreous Humour*, and, of Consequence, to do any Injury to the *Eye*; for the *Needle* is introduced upon the *Aponeuroses* of the *Muscles*, at a small Distance from the *Cornea Transpa-*
rent;

rent; and, as soon as it has pierced the *Membranes*, the Handle of the *Needle* is turned towards the *little Angle*: By this Method, the Point of the *Needle* bears directly behind the *Cataract*, without coming near the *Cristalline*, unless it be distempered. Hence I conclude, whether the *Cataract* be *Membranous*, or no, it does not concern the *Operator*, whilst he directs his *Needle*, in the Manner I have already described; for the *Eye* is in no Danger, as these *Gentlemen* pretend, who allow only of *Membranous Cataracts*.

HAVING explained all the *Accidents* which happen, during the Operation of the *Cataract*, I must subjoin a Word or two concerning these *Cataracts*, which are wont to become *Membranous*; I find *three* Sorts of them, viz. the *Milky*, the *Cheesy*, and the *Purulent*.

THE *Milky Cataract* contains a Body partly solid, partly fluid. The first is easily couched by the Operation, but the *Needle* passes thro' the fluid Part, which often forms a new *Pellicle*, that must be depressed at a second *Needling*, when it has acquired sufficient Solidity. As the Parts of the *Cheesy Cataract* are more so-

lid, the Operation is more successful, than in the precedent ; but they are both unripe *Fruits*. If there remains any fluid Part, which does not yield to the *Needle*, it will generate a *Membrane*, as the foregoing.

THE *third* Species is a *Purulent Cataract* ; for, as I have already observed, when the *Needle* presses it, in order to couch it, a great Quantity of *purulent* Matter discharges itself into the *Aqueous Humour* ; this Matter is of a *whitish*, or *yellowish* Colour, neither is the *Cristalline* to be found in its proper *Coat* : This Sort of *Cataract* never comes to full Maturity.

C H A P. XXIII.

Of the Means to remedy the Accidents subsequent to the Operation of the Cataract.

THE *first* Accident, which follows the Operation of the *Cataract*, is the *Extravasation* of *Blood* ; for, as the *Needle* is introduced, some *Blood-vessels* are pricked ; this *Blood* flows into the *anterior Chamber*, there stagnates, and dims the

Aqueous

Aqueous Humour. In order to disperse it speedily, bleed a *Pidgeon* under the *Wing*, and drop some of the *Blood* into the operated *Eye*; this must be continued three Days, Morning and Evening; you must likewise take care to bathe the *Eye* with Water and *Spirit of Wine*, applying *Compresses*, wetted in the same, to the *Eye*. I prefer this Mixture of Water and *Spirit of Wine* to a *Collyrium* made of *Plantain* and *Rose-waters*, with the *White* of an *Egg* and *Allum*; for *Compresses*, wetted in this *Collyrium*, grow hard and uneasy to the *Eye*, whereas they are always softish, when wetted in the first.

THE *second Accident* is the *Weeping*, or *Flux* of *Serosity*, furnished to the *Eye*, after the Operation, by the *Glandula Lacrimalis*. This *Accident* is more or less dangerous, according to the Nature of this *Serosity*; for, if it be sharp, it brings on a *Defluxion*, sometimes very violent, with cruel *Pains* in the *Head*, on the operated Side; these *Pains* seem to be fixed in the *Dura Mater*, from the Place which the *Patient* shews, viz. all along the inner Part of the *Os Parietale*, beginning towards the *Sutura Coronalis*.

I HAVE, a long Time, searched after the Cause of so acute a *Pain*, in this Place; the most probable, which occurred to me, is the *Continuity* of the *Nerves* of the *Eye* to the forementioned Parts, by which the *Inflammation* is communicated to this *Membrane*. To prove my Assertion, I say, the same *Accidents* happen in violent *Ophthalmies*; hence I infer, it is no Fault of the Operation, as some pretend, who suppose these *Pains* proceed from some *Nerves* being pricked by the *Needle*; were it so, this *Accident* would not happen, in other *De-fluxions* of the *Eyes*, which are not caused by any Operation, or *Puncture*.

WHEN this *Accident* is attended with a *Pulsation* in the *Eye*, such as the *Pulsation* of an Artery, it is a certain Sign, that the *Wound*, caused by the *Puncture*, suppurates inwardly, instead of suppurating in the outward Parts of the *Eye*. In this Case, the *Conjunctiva* and the *Membrana Communis* of the *Eye-lid* are tumefied and distended between the *Eye-lids*, sometimes to the Thickness of one's *little Finger*. If this *Eminence* be *pale*, it is caused by a *Serosity*, and may easily be dispersed by scarifying it with a *Lancet*: If the *Tumour* be

be red, it proceeds from an *Infarction* in the *Blood-vessels*, which suppurates in the Interstices of the *Membranes* of the *Globe*, and afterwards flows out between the *Iris* and the *Cornea Transparent*: But, as I have made Mention of this Case, in the *Chapter* of the *Ophthalmia* which turns to an *Abscess* in the *Eye*, I think it sufficient to lay down the Remedies proper for the present *Accident*.

As soon as the *Flux* appears, the *Patient* must be let Blood in the *Arm*, in the *Neck*, or *Foot*, if requisite; *Leeches* must be applied about the *Eye*, and to the *Temples*; a *Blistering Plaister* must be laid to the *Nape* of the *Neck*: All this must be done with the greatest Dispatch, in order to prevent the *Suppuration* and intire *Loss* of the *Eye*.

THE *third Accident*, after the Operation, is, when there is an inveterate *De-fluxion*, and the *Hairs* of the *lower Eye-lid* are reversed; for, as the Operation requires the *Patient's Eyes* should be kept covered a long Time, the *Skin* of the *Eye-lid* is relaxed; by which Means the *Cartilage* is turned in: Then the *Disease*, called *Trichiasis*, ensues, which is the *Inversion* of

the *Cartilage* of the *Eye-lids*, so that the *Points* of the *Eye-lashes* bear upon the *Conjunctiva* and the *Cornea Transparent* ; the continual *Friction* of the *Eye-lashes* brings on *Defluxions*, and produces obstinate *Ulcers* in these *Membranes*, if not prevented by the following Remedies. I shall relate one Example :

M. de St. Leon, Major of Bouchain, came to me, in the Month of July, 1718 ; he had underwent the *Couching* of a *Cataract*, in the Month of October, 1717 ; he had a violent *Defluxion* with *Ulcers* on his *Eye*, and acute *Pains* in the upper Part of his *Head*, above the *Eye*, and in his *Temple*, on the Side the Operation had been performed.

I BEGAN by *bleeding* him ; afterwards I applied, to the *Nape* of his *Neck*, the *Potential Caутery* pulverized, and in a sufficient Quantity, to make an *Eschar* the Breadth of a *Crown-piece*. I kept this *Ulcer* open two Months ; and, as he was of an hot, adust Temper, I ordered him to drink the *Mineral Waters* of *Pasey*, for eighteen Days ; I performed the Operation of the *Trichiasis*, which may be found in the *Chapter* of that *Disease* : After the

Opera-

Operation, the *Eye-lashes* ceased to fret the *Eye*, the *Fluxion* and *Pains* in the *Head* went off ; in short, he was so well cured, in two Months Time, that he could see again with his *Eye*, which he had not done, for ten Months before.

THE *fourth Accident* is, when, after the *Cataract* has been couched, it springs up again, either whole, or only a Part of it : In the first Case, provided the *Cataract*, when couched, was full ripe, it falls down spontaneously ; but, if only a Part of the *Cataract* was fluid, it adheres to the Back-part of the *Iris*, and will not subside, without a second Operation.

SOMETIMES no Part of the *Cataract* rises up ; but very often the *Patients* can see, at first, after the Operation ; their *Sight* continues the same to the twelfth, or fifteenth Day ; afterwards it decreases, and the *Patients* complain they see *Filaments*, or *Threads*, pass before their *Eyes* ; for this Reason, in couching the *Cataract*, it was separated either by the Middle, or at the Extremity, of the *Ciliar Fibres*, on the Side they are joined to the *Membrane* of the *Cristalline*. As these *Fibres* are inserted in the great Circumference of the

Iris,

Iris, whence they have their Origin, and, uniting together behind the Hole of the *Pupil*, they present these *Threads* to the *Patient's Sight*, which is partly diminished by them ; neither can he see, as well as he should, after the *Couching* : The *Operator*, not perceiving this, at first, thinks his Operation well performed, as it really is, with Regard to him. In all these Cases, where any Part of the *Cataract* remains behind the *Pupil*, if the *Sight* be much weakened by it, a second *Needling* is necessary, in order to depress that Part. This second *Operation* is more dangerous and painful, than the first ; because the *Pellicle*, formed by the remaining Part of the *Cataract*, adheres to the Back-part of the *Iris*, sometimes by two or three *Filaments*, which must be cut. This requires the greatest *Dexterity*, for these *Insertions* commonly bend, and give Way to the *Needle* ; so that, as soon as the *Needle* is raised, the *Pellicle* springs up, and returns to its first Place. We are often obliged to push this *Pellicle*, with the *Needle*, thro' the Hole of the *Pupil*, into the *anterior Chamber*, there to pierce it, and from thence bring it back into the *posterior*, still pushing

pushing it towards the *great Angle*. In short, the same Movements of the *Needle* must be observed which were described, when we treated of that Species of *Cataract* which makes a Sort of *Draw-bridge*.

THE *fifth Accident*, which follows the Operation of the *Cataract*, is incurable, because the *Sight* is lost: It proceeds from a *Defluxion* that falls on the *Optick Nerve* and the *inner Membranes* of the *Eye*; then the Parts grow dry and decay, as appears evidently from the *Retraction* of the *Pupil*, and from the *Patient's* not seeing the *Light*.

C H A P. XXIV.

Of the Superficial Abscess of the Crystalline.

IN the Beginning of this *Disease*, the *Symptoms* are like those of a *Cataract*; for the *Patients* fancy they see *Clouds* and *Shades* in the *Air*; they likewise complain of a Diminution of *Sight* in that *Eye*, of a painful *Weight* in the *Globe*, if you look through the *Hole* of the *Pupil*, the Fore-
part

part of the *Cristalline* appears partly *whitish*.

THE Matter, which forms this *Superficial Abscess*, takes up little more room than that of two *Pins Heads*. When it is full ripe, the *Pus* empties itself into the *Aqueous Humour*, and afterwards sinks to the Bottom of the *Eye*. Where the *Abscess* was, there grows a *Cicatrice*, about the Bigness of a small *Pin's Head*; this *Cicatrice* remains, during the *Patient's Life*, and is the Cause why Persons, afflicted with this *Disease*, always see a *Shade*, imodified, according to the Form of the *Cicatrice*.

I HAVE observed this *Disease* is incident to those who have gazed too long at an *Eclipse* of the *Sun*, or at very shining *Objects*; this *Disease* is of so little Consequence, that it is generally cured spontaneously, without obliging the *Patient* to any other Remedies, but to some proper Waters.

C H A P. XXV.

Of the Diseases of the Retina.

I HAVE observed the *Retina* is liable to *two* Sorts of *Diseases*, the *first* is a *Separation* of some Parts of this *Membrane* from the *Choroides*; at the Place where this *Separation* is made, there follows an *Elevation* or *Fold* which stops the *Light*; and hinders its *Passage* to that Part of the *Choroides* which is covered by this *Fold*; this occasions a Sort of *Shade* which the *Patients* see in the Air. The *second Disease* of the *Retina* is an *Atrophy* or *Wasting* of that *Membrane*, and shall be the Subject of the next *Chapter*.

THE Cause of the *first Disease* may, with great Show of Reason, be thus accounted for, that the *Blood-vessels* of the *Retina* become *varicous*; for it is easily conceived that the Dilatation of these Vessels may separate the *Retina* from the *Choroides*, in that Part which answers the dilated Vessels. I have always observed this *Disease* to proceed from a *Cold* in the *Head*, after some violent Exercise, or whatever else

else may have put the *Blood* into a violent Motion; hence I infer, that the *external Cold*, by obstructing the Pores of the *Skin*, has stop'd the Perspiration of some Part of the *Humours* rarefied in the *Blood-vessels* on the Surface of the *Retina*, which, from the Fineness of its Texture, is damaged by this *Infractiō*, after the above-mentioned Manner. I call this *Disease* a *Separation* of the *Retina* from the *Choroides*. As this *Membrane* fills a considerable Space in the *Eye*, this *Separation* is often made in several Places, so that the *Signs* of this *Disease* augment, according to the Number of the Parts separated.

Its *Signs* are certain Appearances in the Air, more or less distant from the *Patient's Eyes*; they are a Kind of *Shadows* of different Figures, modified according to the Size and Form of the Parts of the *Retina* which is separated.

As to the *Prognostick*, there is no Danger of losing the *Sight*, in this *Disease*, it is only troublesome to the *Patient*; as this *Disease* begins with the same *Signs* as a *Cataract*, one Disorder may be taken for the other; but, to prevent the like Mistake, we shall propose the Difference: In
a *Cataract*,

a *Cataract*, the *Sight* shortens and decreases daily ; whereas, in the present *Disease*, the *Sight* continues the same, both in Quickness and Extent.

THOUGH Remedies do not perfectly cure this *Disease*, and that the Persons, once attacked with it, see some of these *Shades* all their *Life*, their Number and Compass in Breadth may still be lessened ; the following Remedies are of service, such are *Broths* made of *Crabs*, repeated *Purges*, *Eye-bright Tea* drunk in the Morning, Powders of *Vipers*, *Wood-lice*, and *Eye-bright* mixed together.

C H A P. XXVI.

Of the Atrophy of the Retina.

IN an *Atrophy* of the *Retina*, as the *Rays* of *Light* are not sufficiently modified in that *Membrane*, they make too vivid an Impression on the *Choroides*, which is very detrimental to it ; hence ensues a confused *Vision*, so that the *Patients*, at the first Look, can see very well ; but, if they continue to read any Time, or to look at any shining *Object*, they feel a sudden
Weariness

Weariness in their *Head*, and a *Dimness* in their *Sight* : This obliges them to close their *Eyes* ; then, opening them a Moment after, they see, as at the first Look, but for a short Time.

EMBROIDERERS, *Stocking-Weavers*, and *Shoemakers* are subject to this *Disease* ; the *first*, because the *Brightness* of the *Gold*, *Silver*, and other Colours damages the *Sight*, by the lively Impression it makes on the *Eye* , and the *Shoemakers*, in order to find the Hole made by their *Awl* to run the End through it, by this continual Attention, fatigue and weaken their *Sight* so much, that they are obliged to quit their *Trade*. These People can work, but few Days in the Week.

THERE are some People, though they do not work as these *Handicrafts*, cannot, however, make use of their *Sight*, a quarter of an Hour, but their *Head* is disordered : Of those I chiefly treat.

No Remedies cure this *Disease*. Nothing avails, but *Rest* and little *Exercise* of the *Sight* ; all these Persons who are employed at *fine* or *skining* Work, if they have a Mind to continue, must make use of *Green Conserve*s or *Spectacles*.

C H A P. XXVII.

Of the Perfect Gutta Serena.

THE *Disease*, called *Gutta Serena*, is a total *Blindness*, proceeding from a *Palsy* in the principal Parts of the immediate *Organ of Vision*.

WHATEVER Part of the *Body* a *Palsy* attacks, it has different Degrees which render it *Perfect* or *Imperfect*: The same may be said of a *Gutta Serena*, which intirely destroys the *Sight*, or, at least, leaves so little, that it is of small Service to the *Patients*.

IN order to give a clear Idea of this *Disease*, it shall be the Subject of *two Chapters*. In the *first*, I shall treat of that Sort in which the *Sight* is intirely lost; and, in the *second*, of that in which Part of it remains.

THERE are several Causes which may produce a *Gutta Serena*; the first is a light *Apoplexy*, in which the *Humour*, instead of falling on the other Parts of the *Body*, is discharged on the *Optick Nerves* only, by which they are obstructed, and become *Paralytick*.

THIS *Disease* depends on other Causes, as when some other *Humour* is filtrated into

the *Nerves*, or, by lodging on them, causes a *Compreffion* which hinders their *Action*; so that, whether these *Nerves* be obstructed, or compressed, either by *Blood*, *Pus*, or *Pituite*, all these different Matters may produce a *Gutta Serena*: If the *Blood* becomes too *Saline*, it gradually causes this *Disease* by its *Saltiness*, which decays and drys up the principal Parts of *Vision*; and, if the Comparison may be admitted, as *Salted Meat* grows dry: By this Means the *Sight* intirely perishes.

WE often see a *Gutta Serena* succeed *Acute Fevers*, when the *Humour*, that caused them, is removed to the *Visual Nerves*; a violent *Fever*, which has too much rarefied the *Blood* in the *Vessels* adjacent to these *Nerves*, sometimes produces the same Effect; when a *Venereal Humour* is discharged on the *Visual Nerves*, causing violent *Pains* and the *Want of Sleep*, a *Gutta Serena* after follows.

THIS *Disease* commonly begins with violent *Pains* in the *Head*; and, as they decrease, the *Disease* increaseth. Several People, however, have been struck *Blind*, at once, without any previous *Pain*; in others, the *Pains* accompanied the *Disease*, which

which strengthened gradually, and their *Sight* diminished daily, till, at length, it totally perished.

WHEN a *Gutta Serena* comes without *Pain*, and that one *Eye* only is attacked, nothing can be perceived by looking at both *Eyes*, whilst they are open; but, if the well *Eye* be shut, you may observe the *Pupil* of the distempered *Eye* dilate itself, tho' exposed to the *Light*, and it will remain in that State, till the well *Eye* be opened again; then the *Pupil* of the Diseased *Eye* contracts itself, in like Manner as that of the good *Eye*, from which the distempered *Eye* borrows its Motion: By this *Sign* only, we are assured there is no *Sight* in the distempered *Eye*. This *Sign* is peculiar to this *Disease* and cannot be found in a *Glaucoma*, in which the *Pupil* continues always dilated. There is likewise another Species of *Gutta Serena*, in which the *Pupil* is always contracted, whether the good *Eye* be open or shut; we have taken Notice of this Sort, in the *Chapter* which treats of *Vision*.

THE *Signs* of a *Gutta Serena* are visible, from the Inspection of the *Eyes*, whether the *Pupil* be dilated or contracted.

As those *Muscles* of the *Body* are called

Antagonists, because they perform opposite Motions, such as *Flexion*, *Extension*, &c. in the same Manner, amongst the *Motory Fibres* of the *Iris*, some serve to dilate it, whilst others contract it; therefore, when, in a *Gutta Serena*, the *Pupil* remains dilated, the *Fibres*, which should contract it, are *Paralytick*, in the particular Manner I have described: But, if the *Pupil* be contracted, these *Fibres*, which should dilate it, are affected; the *Sight* is equally lost, in both these Cases.

A *Gutta Serena* has been, hitherto, deemed incurable; I can, notwithstanding, produce many *Experiments* of the contrary. I have, for the most Part, observed that Species to be incurable which succeeds an *Acute Fever*, when its productive *Humour* has been discharged on the *Visual Nerves*. If this *Humour* damages but one *Eye*, there is Room to fear, lest the *Fever* return in the Year, and the other *Eye* be affected in the same Manner. I have, hitherto, observed this Misfortune happen to all those, when their *Gutta Serena* began by a light *Inflammation* attended with violent *Pains* in their Head on the Side of the affected *Eye*; this Observation has induced me to think, though I never dare attempt it, that,

that, by *extirpating* the decayed *Eye*, one might prevent the good *Eye* from falling into the same Misfortune; it would be a great Comfort to the *Patient*, to have his other *Eye* preserved from the Discharge of this destructive *Humour*, which, for the most Part, happens, a Year or two after the *Loss* of the first *Eye*.

I HAVE cured several of a *Gutta Serena*, when they were committed to my Care, in the Beginning: My Method is to bleed them in the *Arm*, in the *Foot*, and in the *Neck*, in Proportion to their *Repletion*; afterwards I prescribed them an *Emetick* to be taken, once or twice in the Interval of two Days.

ALL Remedies for a *Palsy* are likewise good in this *Disease*: A *Seaton* or *Blistering Plaister* may be laid to the Hind-part of the *Neck*; I find the *Caustick* too slow in its Operation, and the productive *Humour* of the *Gutta Serena* has Time to thicken, and thus the *Disease* becomes incurable.

TWELVE Years since, a Country *Curate*, of the Diocese of *Paris*, came to consult me, a few Days after he had been attacked with a *Gutta Serena* in one *Eye*;

I gave him a *Vomit*, the first Day ; the next Day, he was let Blood in the Neck : Two Days after, he took a second *Vomit*, upon which his *Sight* began to return, and was gradually restored by holding his *Eye* over the Steam of hot *Spirit of Wine*.

BESIDES the *Gutta Serena*, of which we have now treated, there is another Sort : It generally attacks *Maids*, that are not regular, or *Women* with *Child*; and Men are likewise subject to it, through a *Suppression* of the *Hemorrhoidal Flux*. Some *Authors* ascribe the Cause of this *Disease* to an excessive *Distension* of the *Vitreous Humour*; and, in order to prove their Assertion, they pretend the *Globe* of the defected *Eye* is bigger, than it should naturally be : I have tried all Means possible to discover, whether the Cause of this *Disease* was owing to the pretended *Increase* of *Size* in the said *Humour*, but I could never perceive the least Difference from its natural State.

I JUDGE this *Disease* proceeds from some *Humour* that is thrown upon the *Visual Nerves*, by which they are compressed : The *Symptoms* seem to strengthen my Opinion, for the *Patients* feel a *Heaviness*

vinefs attended with *Pain* more or lefs acute, in the Back-part of the *Globe* of the *Eye*. This fhews the *Optick Nerves* fuffer by fome *Humour*, which is fettled upon them, before they enter into the *Eye*; Befides, this *Species* of *Gutta Serena* is oftener cured than the precedent, for, without doubt, it proceeds from a fimple *Compreffion* of the *Nerves*, and not from the exceffive *Size* of the *Vitreous Humour*.

REMEDIES for this *Species* of *Gutta Serena* are *Bleeding* in the *Foot*, and thefe Medicines that provoke the *Menses* in *Women*, and the *Hemorrhoidal Flux* in *Men*. To make a Derivation of the *Humour* from the *Eyes*, *Wood-lice*, *Eye-bright*, either in Substance or Infufion, and *Viper Broths* will be of Service; let an *Ophthalmick Water*, and the Vapour of *Fioraventi's Balsam*, be applied to the *Eyes*.

WE find *Infants* are not exempted from this *Difeafe*, fince fome are born *Blind*. At firft, their *Blindnefs* does not appear, but, as they grow up, it is perceived; I have cured feveral with my *Ophthalmick Water*; fome of thefe *Children*, at the Age of two Years, had no apparent or vifible *Signs* of *Sight*. It is to be obferved, the

Pupil of these *Children*, though it has no Movement, is no more dilated than in its natural State; which Observation shews this *Disease* is only a *Numbness*, or *Weakness*, in the principal Parts of the *Organ* of *Vision*.

C H A P. XXVIII.

Of the Imperfect Gutta Serena.

I CALL a *Gutta Serena Imperfect*, when the *Patients* continue to see but *imperfectly*: It has different Degrees, according to the Number of *Fibres* which are attacked by the *Palsy*. Sometimes it is only a Sort of *Numbness* in these *Fibres*; sometimes only half an *Object* is seen, whilst the other half is not perceived, because only half the *Eye* can see, the other half being *Paralytick*. You may easily find out the Degree of this *Disease*, by desiring the *Patient* to shut his good *Eye*, and look into a *Book* with his other *Eye*; for then he sees only a certain Part of the *Page*, whereas he can see the whole *Page* with his well *Eye*.

SOMETIMES the *Fibres* are quite immersed in the *Humour* which causes the *Palsy*; then the *Patients* can only perceive the *Light*, but not distinguish *Objects*. This *Disease* is often produced by what we call *Vapours*; and I have frequently seen *Women* deprived of their *Sight*, for the Space of half an Hour, an Hour, and sometimes two or three Days. This last Case is incident to *Women*, in their *Delivery*.

THIS *Disease* has the same Causes with the *Perfect Gutta Serena*, that Species, which proceeds from *Vapours*, excepted; but the *Humour* is in less Quantity, for which Reason the *Eye* is not so much injured.

I HAVE seen Persons afflicted with this *Disease*, from the Use of a *Pomatum* that had repelled a *Tetter* which was spread round their *Eyes*: They recovered their *Sight*, by the Help of *Aperitive Broths* and *Sudorificks* which expelled the *Tetter*; others have been attacked with this *Disease*, from a *Cold* they have taken in their *Head*, after a violent *Heat*.

THE Signs of an *Imperfect Gutta Serena* are easily known: By examining the
Eye,

Eye, whether the *Pupil* be dilated or contracted, the Degree of *Sight* may be soon learned; for, in either of these Cases, if the *Iris* has one quarter of its Movement, we judge that quarter of the *Sight* remains; if it has half its Movement, half of the *Sight* remains.

IN the Cure of this *Disease*, after the *General* Remedies, and these prescribed in the *Perfect Gutta Serena*, *Viper Broths*, or the hot *Mineral Waters*, should be drunk, if the *Disease* seems to proceed from a viscous thick *Humour*; but, if it is produced by a sharp thin *Humour*, the cold *Mineral Waters* are to be preferred.

LET the *Eye* be held over the *Steam* of hot *Spirit of Wine*, or of *Coffee*; the *Steam* must pass through a *Funnel*, as I ordered in the *Chapter* of the *Palsy* of the *Eye-lids*; this must be repeated, twice or thrice a Day.

I HAVE cured several Persons afflicted with this *Disease*, by the Use of these Remedies; I shall only relate one *Experiment*, on Account of its *Singularity*: Eleven or twelve Years since, a *Canon Regular* of *Rheims* came to *Paris* to consult me; I perceived one of his *Eyes* was seized

seized with an *imperfect Palsy*; there was a Dilatation of the *Pupil*, which had but a quarter of its contracting Movement: I was very much surprized when he told me, if he looked into a *Book*, his well *Eye* being shut, that he could see the perfect Representation of his diseased *Eye*; at first, I judged him to be *Hypocondriack*, but, in order to be satisfied of the Truth, I desired him to close his well *Eye*, and to look into a *Book*; then I asked him, what he could see in the *Page*? He answered me, that he perceived the *Lines* like *black Strokes*, without distinguishing the *Letters*; and that, in the Middle, he saw the Representation of his *Eye*. I asked him, when he assured me he saw his *Eye*, of what Colour was the *Iris*, and the Disposition of certain *Rays* which cross it? He answered me so justly, and described them so accurately, that I could not see them better myself in his *Eye*. This young *Canon* was cured, in thirty Days, by the Use of *Purges*, *cooling Broths*, and *Spirituos* Applications to his *Eye*; he saw to read perfectly well, and was rid of the false Image of his *Eye*, which was so uneasy to him before.

Mr. *Petit*, of the *Academy of Sciences*, assured me that he had seen the like *Disease*.

C H A P. XXIX.

How to help the Sight with Spectacles.

WHEN I treated of *Vision* in general, I reduced it to *three* Sorts, viz. the *Good Sight*, that of the *Presbytæ*, and that of the *Myopes*; those three Species may be variously weakened.

I UNDERSTAND by *Weakness of Sight*, when *Objects* are not seen as distinctly as usual; for Instance, when a Person cannot see to read. All the *three* Species of *Sight* are liable to this Indisposition: The *Good Sight* is impaired, when the *Eyes* become moist and weeping; the *Serosity*, which constantly moistens them, injures the *Sight* very much. Persons, afflicted with this Infirmary, must have Recourse to *Convex Spectacles*, which must be so proportioned to their *Sight*, that they may be able to read, or work, which they cannot well do, without this Sort of *Spectacles*.

THE *Presbytæ* cannot distinguish small *Objects*, or minute *Characters*, without straining their *Eyes*, and discomposing their *Head*; yet they can see distinctly larger *Objects*, at a considerable Distance. This proceeds from the too great *Convexity* of the *Cristalline*, which occasions *Rays*, reflected from *Objects* near the *Eye*, to diverge from the Place where they should unite, when *Vision* is perfect; the same does not happen, when the *Objects* are distant, because the *Rays*, reflected from them, converge more, and thus they have a *Focus*, in just Proportion. In order to remedy this Infirmary, let the *Patient*, at first, use *Converses* that do not magnify, and from them he must pass gradually to more *Convex Spectacles*, which shorten the *Focus*.

The *Sight* of the *Myopes* is so short, that they can neither read, nor distinguish *Objects*, without *Concave Glasses*; this is owing to the too great *Convexity* of the *Cristalline*. The *Concavity* of their *Spectacles* must be proportioned to the *Shortness* of their *Sight*.

IT often happens, after the Use of *Spectacles* for many Years, that the *Cristalline*

stalline re-assumes its proper Form, so that they are no more required. It has been likewise observed, that several Persons, neither *Myopes* nor *Presbytæ*, have been necessitated, on Account of a *Weeping*, to wear *Spectacles*; and, when this *Disease* ceased, they have laid them aside.

C H A P. XXX.

Of the different Sorts of Spectacles.

FOR the most Part, *Spectacles* are either *Convex* or *Concave*; they both have different Degrees or *Focus's*. There are likewise some flat, and even in their Surface; they are called *Conservees*, and are made either of green, or of white *Glass*. *Convex Spectacles*, of the first Degree, magnify but very little, and may be used as *Conservees*; the rest magnify, in Proportion to their *Convexity*.

THAT Place, in *Spectacles*, is called the *Focus*, where the *Rays* of *Light*, which pass through the *Spectacles*, are united on a Body that is placed opposite to the *Light*; and the Degrees of *Spectacles* are measured, by the different Distance of their *Focus*.

It is a Caution of great Importance, not to use *Spectacles* too soon ; and when a Person has once begun to use them, not to change them too often, for, at length, he cannot get any proper for his *Sight*.

THOSE Persons, called *Myopes*, ought to use *Concave Spectacles*, when they read, as little as they can ; they must likewise begin with the least *Concave*.

C H A P. XXXI.

How to be exempted from the Use of Spectacles.

I THINK it necessary to say something of the Means to preserve the *Sight*, and to lay aside the Use of *Spectacles* ; tho', perhaps, this Method may not succeed to all Persons, yet several, by following it, will be freed from the Trouble of *Spectacles*. I shall exclude the *Myopes*, for no Remedy can lengthen their *Sight* ; the *Good Sight*, and that of the *Presbytae*, can only receive Benefit from this Method.

THE *Good Sight*, as we have already observed, is often weakened by a redundant *Serosity*, which perpetually fills some
People's

People's *Eyes*. In this Case, I use my *Optthalmick Water*, which, applied three Times a Day, dries up the Moisture, and strengthens the Parts. Remedies that will evacuate the *Pituite* from the *Brain*, such as *Purges* and smoaking *Tobacco*, are serviceable, in this Disorder of the *Sight*.

THE *Presbytæ* may be freed from the Use of *Spectacles*, by restoring their *Cristalline* to its natural State; the following *Tincture* will be very serviceable in this Case: It is composed of *Sage*, *Rosemary*, *Lavender*, and *Thyme*, when they are in Flower, of *Wormwood* and *Origany*, of each an equal Quantity; let them infuse in *Brandy*, the Space of four Days; then let the *Brandy* be cleared off, and used in the following Manner: Let one Part of this *Brandy* be mixed with four Parts of the distilled Water of *Blue-bottle* or *Cyanus Segetum*, or with *Eye-bright Water*; then put it into a *Spoon*, which you must heat, to warm the *Brandy*; let the Inside of the *Eye* be bathed with this Mixture, twinkling the *Eye-lids*, that they may imbibe the Water, and convey it round the *Eye*. This must be done, four or five Times successively, Morning and Evening; when

when this Mixture has been used in the
foreſaid Manner, and Degrees of Strength,
for a Fortnight, then let only three Parts
of the fore-named *Waters* be mixed with
one Part of the *Brandy*. When the *Eye*
is accuſtomed, for ſome Time, to this
Degree, then let *Brandy* and the ſaid *Wa-*
ters, of each one Half, be mixed ; let
this be the Standard : Theſe Degrees are
increaſed for this Reaſon, that the *Brandy*,
by its Pungency, may ſtimulate and velli-
cate the *Eye*, by which the *Nutritious*
Juices of the *Eye* will be more inſpirited
and attenuated, and their Quantity, as
well as Fineneſs, will be increaſed ; ſo
that, by the Help of one and the other,
the *Criſtalline* may be reſtored to its natu-
ral State.

C H A P. XXXII.

Of Accidental Cauſes, which may
damage the Sight.

B E S I D E S the forementioned Cau-
ſes of *Weakneſs* in the *Sight*, there
are others which weaken, and ſometimes

destroy it. This Misfortune may happen, when too vivid a *Light* makes its Impression on the *Eyes*, whether it be emitted by the *Sun*, by the Blaze of a *Fire*, or a Flash of *Lightning*, by *Snow*, or by the Reverberation of some *Luminous Object*. I shall relate some Examples :

A *Woman*, who had been to gather *Strawberries* in the *Sun*, saw, for above two Months after, a *Strawberry* dance before her *Eyes* ; her *Sight* was somewhat impaired ; the red Colour of the Fruit had made so strong an Impression on those Parts of the *Eye*, in which *Objects* are projected, that she always fancied she saw the same.

I SAW a *Man*, in the *Rue Roiale* in *Paris*, who lost his *Sight*, by approaching too near the *Light* and *Heat* of a great *Fire*, to fasten a String to a *Fowl* that was turning on a *Spit*.

As a *Workman*, in the *Mint* at *Paris*, was throwing some *Metal* into a red-hot *Melting-pot*, he was struck blind by a Flash of the blazing *Fire*. I have seen the same Accident from great Flashes of *Lightning* ; and many Persons have half lost their
Sight;

Sight, by gazing too long at *Eclipses* of the *Sun*.

THE same Accident has happened to *Prisoners*, who had been long confined in a *Dungeon*, when they were, of a sudden, exposed to full *Day-light*. This Misfortune has befallen others, after they had walked a long Time on *Snow*, in a clear *Day*.

EXCESSIVE Application to write or read *Law-writings* and small *Characters*, Spending the Night at some very close *Work*, *Gaming* Night and Day; all these Excesses weaken the *Sight*, and should be intirely laid aside by those who covet to preserve it.

To ward against the Impression of too vivid a *Light*, or of *Snow*, this Precaution may suffice: Shut your *Eye-lids*, and, when you are obliged to open them to see, open them but half, to prevent the Entrance of too great a Number of *Rays* into the *Eye*.

C H A P. XXXIII.

Of the Operation to be performed on the Eye, when an Artificial Eye is to be applied.

AN *Oculist* must not only be skilled in the *Diseases* of the *Eyes*, and the Means to cure them; it is also requisite, when an *Eye* is deformed, and altogether useless, that he should know how to prepare that *Eye*, in order to fix an *Artificial Eye* in the Room of it; so that the *Artificial* one may appear like the good *Eye*, and may likewise have the same Movement; *Art* ought to imitate *Nature* so exactly, that the one may not be distinguished from the other.

IN the Cure of an *Abscess* of the *Eye*, if you perceive, during the *Suppuration*, that the *Sight* of the *Eye* is unavoidably lost, you must endeavour to render the *Suppuration* copious enough to dissolve, or diminish, a fourth, or a third Part of the *Globe*: This you may do, by retarding the *Suppuration*; for, the longer the *Pus* remains, the greater will be the *Consumption* of the *Eye*;

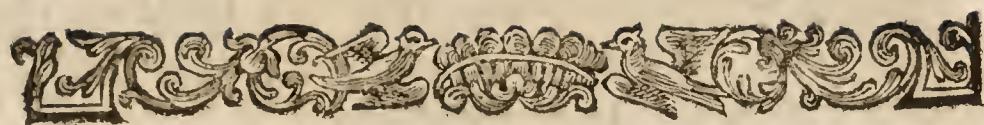
Eye; and therefore, as soon as you judge a sufficient Quantity of *Pus* is gathered, discharge it with *Mundificants*; after the *Suppuration*, the *Globe*, by this Method, will be in a proper Condition to receive an *Artificial Eye*.

IF the *Globe* of the *Eye* be too large, when the *Sight* is lost, whether by a *Staphiloma*, or from any other Cause, the superfluous Parts of the *Eye* must be removed; you must cut the *Iris*, together with the *Cornea Transparent*, so that all the Extremity of the Circumference of the *Conjunctiva* must be cut away, half a Line beyond the *Cornea Transparent*. By this Method, the *Humours* of the *Eye* will be emptied, the *Globe* will contract and sink in, and, after the Wound, made by the Incision, is healed, there will remain a Sort of *Globe* less than the former; then the *Artificial Eye* may be fixed: It must be *concave*, in its Back-part, to receive the remaining Parts of the *Eye*; it must likewise be capacious enough to fill up all the Space contained under the *Eye-lids*. If that Chasm be exactly filled, and the *Artificial Eye* be equal, and like the good *Eye*

in Size, Breadth, Form, Colour, Shape of the *Iris*, and Hole of the *Pupil*, it is not to be distinguished from the *Natural Eye*; in all my Undertakings of this Nature, I have had full Success.

ALTHO' we just now observed, that an *Artificial Eye*, if well fixed, ought to have a Movement very like the *Natural*, by the Help of the remaining Part of the *Globe*: yet, if any Accident obliges us to make a total *Extirpation* of the *Eye*, it is manifest, the *Artificial* one shall have no Movement, but what it borrows from the *Eye-lids*.

F I N I S.



Monfieur DE ST. Y V E S,

His ANSWER to a LETTER, containing Critical Remarks on his Treatise of the Diseases of the Eyes, inserted in the Supplement of the Mercury, for the Month of May, 1722, by the Name of M. Mouchard: Which Answer may serve, as a Supplement to his Treatise of the Diseases of the Eyes.



THE Author of the *Letter*, inserted in the *Mercury* for the Month of *May*, 1722, containing *Critical Remarks* on the *New Treatise of the Diseases of the Eyes*, which I published, was, first, Disciple to M. *Heister*, Professor of Anatomy at *Helmstadt*, and, afterwards, Disciple of Mr. *Woolhouse*: He pretends, in his *Criticism* on my Book, to establish a Species of *Cataract* from an Alteration of the *Aqueous Humour*; but I have sufficiently

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ciently demonstrated, where I treat of the different Nature of *Cataracts*, the Fallacy and Error of that Opinion.

WHAT is more surprizing, he begins his *Criticism* by a Falsity evident to all the World; he pretends I own in my *Preface*, that I should have had better Success, in my Writings and Discoveries, had not I began so late, and in an advanced Age, to apply myself to this *Profession*. What must the Reader think of a *Critick*, who is guilty of Interpolation, in the very Year a *Book* is printed, when the *Author* of it is living? He must suppose this Story was raised, that I might appear as old as his last Master; not knowing that I began the Profession of *Surgery* at the Age of Seventeen, and, when I was Twenty-two Years old, I applied myself to the Study and Cure of the *Diseases* of the *Eyes*; which *Profession* I have followed, in *Paris*, these Thirty Years. He may learn, from the Truth of what I now assert, whether I began so Old, as that *Gentleman* insinuates; I pass by several *false Reports* to be met with in his *Letter*; their Falsity will appear to any Person, from what I have now said, and by confronting them with my *Book*.

THE same *Book* evinces the ill Design of the Author of the *Criticism*; for it clearly shews the *Falseness* of his Opinion,
taken

taken from the *Lecture* of the *Antients*, and the *Truth* of mine, founded on *Anatomy* and a great Number of *Experiments*; for which Reason, I have omitted the Citations of *Authors*, because what I have said flows from the Fountain-head, and is the Result of my own *Experiments*, for many Years, which I have digested and published in the said *Book*, in order to free a *Science*, so useful and necessary to the Publick, out of the Hands of *Empiricks*, who have, at all Times, usurped it. In this Assertion, I do not comprehend several, who, in our Days, have been eminent in this *Science*; their Merit and Skill have been justly acknowledged and esteemed by all People.

BEFORE I shall descend to particular Proofs, that there can be no *Cataract* from the bare *Alteration* of the *Aqueous Humour*, I think myself obliged to answer two Articles: The *first* is, when the *Author* says, I learned, in the *Works* of M. *Brisseau*, that there is no *posterior Chamber* in the *Eye*, to contain the *Aqueous Humour*. But in this he is mistaken; for I freely acknowledge, that I never took Notice of it, till the *Winter* of the Year 1721: Then several learned *Members* of the *Royal Academy of Sciences* took care to get some *Eyes* intirely froze; they found almost no *Aqueous Humour*, or very little, in the *posterior Chamber*,

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Chamber, as may be seen in their *Memoirs*.

THE *second* Article is, where the *Author* of the *Letter* thinks the *Operator* involves himself in a dangerous Affair, when, having thrust the Point of his *Needle* into the Body of the *Cataract*, in order to free it from the *Needle*, he gives a *Stroke* with one *Finger* on the *Temple*; so that the Concussion of the *Needle* may force the Body, which it has pierced, to fall off its *Point*, and, by that Means, the *Operator* may place the Body in its proper Place, without drawing the *Needle* out of the *Eye*.

'TIS evident, he has seldom performed this Operation; for, had he couched, as I have done, for the Space of thirty Years, sixty or eighty *Cataracts* a Year, without Doubt he would have observed, that, in an hundred, there are always one or two, in which this Circumstance happens, if the *Operator* undertakes them full ripe: For which Reason, the *Stroke* with the *Finger* on the *Temple*, as I ordered, is so far from being dangerous, that it is the only Means left; for, in such a Case, if the *Needle* be drawn out of the *Eye*, the Body of the *Cataract* will not quit it, till all the *Needle* be taken out; this Body, not being depressed, will float in the *Aqueous Humour*, and, of Consequence, may
adhere

adhere a second Time, and so render the Operation uselefs.

As to the Caution, I gave the *Operator*, that he should observe, with the greatest Exactness, the different Movements of the *Patient's Eyes*, whilst he is performing the Operation, it did not proceed from my falling into such a Neglect; my Design was, to precaution those that are not versed in the Operation, who, for Want of due Attention to the Movements of the *Eye*, may damage the *Iris*, and destroy the *Sight*. This Misfortune has often happened here, in *Paris*, to poor People, that were, imprudently and unjustly, sacrificed to the first Attempts of Apprentices of some Months: This I am ready to prove, when my Superiors, duly watchful of the publick Welfare, shall require it.

WHEN the Author of the *Letter* mentions, that, instead of the *Membranous Cataract*, I have substituted the *Empyema*, or internal Suppuration of the *Eye*, he is mistaken; for, in my *Treatise*, I have observed, when the Suppuration attacks all the *Choroides*, as far as the *Optick Nerve*, then the *Eye* is seized with an *Atrophy*, and forms a Sort of *incurable Cataract*, attended with a Retraction of the *Pupil*, as may be seen in the 329th Page of the *Treatise* in *French*, and in the 347th and 348th Pages

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Pages of the *Manuscript*. But, if the Suppuration attacks only the Fore-part of the *Choroides*, called *Iris*, the *Eye*, far from decaying, still retains its natural *Size*; and that *Matter*, which causes the *Infarction* and *Obstruction* in the *Veins* and *Arteries*, changes to *Pus*, which ouzes and glides between the *Cristalline* and the *Iris*, and forms a *Membranous Cataract*, after the Manner I have described it.

THE Author of the *Letter* is wrong again, when he presumes to say, that I am ignorant of an Operation, which should be performed in an *Inflammation* of the *Choroides*; I have proposed this Operation, in the Chapter of the *Cure* of an *Ophthalmy* in general, *p.* 195. of the *French Edition*, *p.* 231. of the *Manuscript*, where I have shewn the different Manners of performing it.

As, in my *Treatise*, I have offered Reasons and Proofs, of sufficient Conviction, that no *Cataract* can be formed by the bare *Alteration* of the *Aqueous Humour*, I should think it needless to answer that Part of his *Criticism*, had not the Author of the *Letter* asserted, as a Proof such a *Cataract* may be formed in the *Eye*, that no *Answer* had been made to the different *Tracts*, wrote by Mr. *Woolhouse*, against *Messieurs Brisseau* and *Antoine*, and to the *Experiments* he has offered to confirm his
Opinion :

Opinion : He further presumes, and flatters himself, as these *Tracts* had been printed in several Languages, to have engaged most of the Learned in *Europe* on his Side. In order to undeceive the Reader, whether most of the Learned have espoused Mr. *Woolhouse's* Cause, he has only to observe this *Criticism* is founded on two false Principles ; viz. That there are but two Sorts of *Cataracts* curable by the Operation ; one of these he calls a *Glaucoma*, and the other a *Membranous Cataract* : In his Opinion, the *last* is formed by a bare *Alteration* of the *Aqueous Humour*, if I can rightly discover it by his *Writings*, which are very equivocal.

As to a *Glaucoma*, you must observe, *first*, that the *Antients* took a *Glaucoma* and a *Cataract* for the same *Disease*, as may be seen in *Hippocrates* ; 2dly, In Process of Time, a *Glaucoma* has been looked upon as different from a *true Cataract*, for a *Glaucoma* is not curable by the Operation, and, when it is performed, it is only to remove the Deformity which attends it, without restoring the *Sight*.

SOME *Moderns* have thought a *Glaucoma* to be an *Alteration* of the *Vitreous Humour* ; but I have always remarked, in this Case, that the Operation restored the *Transparency* to the *Eye*, but not the *Sight* ; and that, after the Operation, there appears

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appears no Mark of *Opacity* in the *Vitreous Humour* : For which Reason, I have described this *Disease*, pursuant to my own Experience, and have assigned the Name of *Glaucoma* to a *Cristalline Cataract*, accompanied, and even anticipated, by a *Gutta Serena*, v. p. 264. of the *French*, p. 294. of the *Manuscript*.

WE must therefore conclude, the Author of this *Letter* is mistaken in his Assertion, that the *Sight* is restored by an Operation which may be performed, and that he confounds the *Cataract*, as the *Antients* did, with the *Glaucoma*.

LET us now examine his *Membranous Cataract* : He is of Opinion, it is a *Body*, or *Membrane*, formed by the *Alteration* of the *Aqueous Humour* only ; he pretends to cure it by the Operation, and, in this Case, to restore the *Sight* after the Operation. To this I answer : Were it possible a *Cataract* of this Nature could be formed in the *Eye*, it would be formed rather in the *Anterior Chamber*, than in the *Posterior*, which contains very little, or no *Aqueous Humour*.

BUT we never find a *Cataract* take its Origin in the *anterior Chamber* of the *Eye* ; from hence it follows, as a necessary Consequence, that no *Cataract* is formed by the bare *Alteration* of the *Aqueous Humour* : Besides, were it true, that the *Al-*
teration

teration of the *Aqueous Humour* only could produce a *Cataract*, it could not be couch'd without destroying the *Cristalline*, the lenticular Part of which terminates in the Hole of the *Pupil*, as has been observed, not only by several *Moderns*, but likewise by the famous *Ab Aquapendente*, equally eminent in *Anatomy* and *Surgery*; who, above a hundred Years since, had performed the Operation of the *Cataract*, and declares the same, in his excellent *Treatise of Chirurgical Operations*.

As to the *Proofs*, which the Author of the *Letter* deduces from the Silence of *Messieurs Brisseau* and *Antoine*, he ought to know, that Mr. *Heister*, his first Master, has answered at full Length Mr. *Woolhouse*: And, when the latter pretends, that Mr. *Heister* has retracted from his Opinion, it is likewise false; for, altho' he says he admits of *Membranous Cataracts*, he adds they are very rare, neither does he assent that they are formed by the *Alteration* of the *Aqueous Humour*.

BESIDES, Mr. *Heister's Apology*, and his subsequent *Treatise*, intitled *Vindiciæ*, sufficiently demonstrate, that he has answered all Mr. *Woolhouse's Criticism*. To these I refer the Reader, and chiefly to his *Treatise*, called *Vindiciæ*, which is now very scarce in *Paris*; since the Author of the *Letter* has presumed to cite the said
Treatise

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Treatise to prove the Retracting of the most obstinate Adversary, for with this Title the young Disciple is taught to honour his old Master. In that *Treatise*, the Reader may see, that Mr. Heister proves, by different printed *Tracts*, and shews Mr. Woolhouse, in a convincing Manner, that his Opinion differs very much from that of Messieurs Antoine and Brisseau. He farther says, If Mr. Woolhouse had not comprehended this at first, he ought to have understood it from his second *Letter*, wrote in the Year 1715, and printed in the Year 1717, and especially from these Words, Page 87. “ That the *Disease*, which the
“ Antients commonly judged to be a Ca-
“ taract, lies, for the most part, *plerum-*
“ *que*, in the *Cristalline*, and much oftener,
“ than in a *Membrane*.”

ALTHO' this Passage of Mr. Heister seems to intimate, that there are *Membranous Cataracts*, it does not follow, that he has given up the Cause to Mr. Woolhouse, as he pretends : If so, he would have agreed with Mr. Woolhouse, that a *Glaucoma* is curable by the *Operation*. But all Mr. Heister's Writings, against Mr. Woolhouse, are calculated to shew him, that a *Cataract*, curable by the *Operation*, is not a *Glaucoma*, and that Sort, which is curable by the *Operation*, is formed by an *Opacity* of the *Cristalline*, which happens
much

much oftener, than the *Membranous Cataract*; neither does he explain the Nature of a *Membranous Cataract*, which Mr. *Woolhouse* pretends to proceed from an *Alteration* of the *Aqueous Humour*. But I have found, by my own Experience, that this Sort of *Cataract* is produced by *Pus*, that is gathered and thickens in the Form of a *Membrane*, between the *Iris* and the *Cristalline*, as I have described in my *Book*.

As I am the first, that has discovered the true Cause of a *Membranous Cataract*, and of a *Glaucoma*, I presume to say, this Discovery will clear all the Difficulties and Disputes, which have been raised on this Subject, as to the Obscurity and Confusion of the *Antients*: It will likewise put an End to the Dispute, which has been continued amongst the *Moderns*, these fifteen Years; for, in my *Book*, I have given a Description of the *true Cataracts*, in which the *Operation* succeeds. I have also proposed the *Signs* of *false Cataracts*, in which the *Operation* is useless, and of those which are *doubtful*, because the *Operation* is sometimes followed by a happy Cure, tho' not always. Let Mr. *Woolhouse* satisfy the Learned of *Europe*, and manifest his Reasons, why the bare *Alteration* of the *Aqueous Humour* should penetrate a *Membrane* between the *Iris* and the *Cristalline*, since he will not allow

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it to be formed by *Pus*, or any other Matter susceptible of Coagulation, and extravasated in that Place. He ought to have observed, during the Time he has practised the Operation of couching, when a *Purulent Cataract* is Couched, that the *Pus* empties itself behind the *Iris*, and that in three Weeks, or thereabouts, this purulent Matter thickens into a Membrane; this Sort of Membrane is very like the *Membranous Cataract* described in my *Book*, where I treat of *false Cataracts*.

I SHALL here observe, that M. *Anthoine* had answered Mr. *Woolhouse's* Criticism of his *Book*; he sent the said Answer to M. *Mery* deceased, first Surgeon of *Hotel-Dieu* in *Paris*, and Member of the *Royal Academy of Sciences*, who did not think fit to have it printed, by Reason of the harsh Expressions with Regard to Mr. *Woolhouse*, which he judged no Ways agreeable to the Answer of a Criticism. This Answer may easily be found amongst his Papers.

FOR my Part, I am so fully convinced, from my own Observations and Experiments, of the Falshood of the pretended *Membranous Cataract* from an Alteration of the *Aqueous Humour*, that I am ready to imitate Messieurs *Drelincourt* and *Nuck*, two famous Professors in the University of *Leyden*,

Leyden, who performed the Funeral Obsequies of the *Glandula Pinealis*.

Now let us examine Mr. *Woolhouse's* Experiments mentioned in the Critical Letter: Of all his Experiments I chuse that of the Hospital of *Madame de Montespan*, for it appears to me to have the greatest Force and Weight. The subsequent Relation of it is given by the Author of the Critical Letter, p. 110.

“ Mr. *Woolhouse*, in his Critical Dissertations p. 27, produced a Fact and Experiment very authentick and well circumstanced, concerning a *Membranous Cataract* which he had couched in the Eye of one *Gabriel le Cocq* in the Hospital of *Madame de Montespan*, near St. *Germain en Laye*; this Man died some Years after, at the Charity Hospital of the same Place. The Cataract had in Part sprung up again, Mr. *Woolhouse* extirpated that Eye in the Presence of Mr. *Constable*, ordinary Physician to the late K. *James*, and opened it in Presence of Sir ----- *Waldgrave*, the King's first Physician, Mr. *Constable*, and Mr. *Wood* his second Physician; he found in that Eye a small tough Membrane placed between the *Iris* and the *Ciliar Ligament*; the *Cristalline Humour* was entirely sound and transparent, except a

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“ light Blemish which had been occasioned
“ by the Rubbing of the strange Body.”

IN Answer to this Fact, I shall relate another very like it ; which was communicated to me, in the following Letter of the 31st of *May*, 1722, by M. *Morand* the Son, Surgeon Major of the *Royal Hospital of Invalids*, and Member of the *Royal Academy of Sciences*.

“ I PERFORMED the Operation on
“ both the *Eyes* of one *John Francis Frai-*
“ *zard*, and with such Success, that he
“ could distinguish Objects when presented
“ to him, and, after he went out of the
“ Infirmary, he was able to guide himself.

“ THIS Soldier died of a *Dropsy* the
“ thirtieth of *March* this present Year 1722.
“ I was resolved, to profit on so favourable
“ an Occasion, to examine the Body I had
“ couched with my *Needle*, for which
“ Reason I separated both *Eyes* from their
“ *Orbits*.

“ THIS happened exactly in the Va-
“ cation Time of the *Academy*, so that
“ I could not defer the Inspection of these
“ *Eyes*, lest they might be damaged,
“ or I should lose the present Opportuni-
“ ty. I prayed Messieurs *Winslow* and
“ *Petit*, both *Academicians*, to honour me
“ with their Presence at the Opening of
“ the *Eyes*, which I was to perform the
“ 30th of *April*; these two celebrated
“ *Anatomists*

“ *Anatomists* were Witnesses of the follow-
“ ing Facts discovered by the Opening of
“ these *Eyes*, viz.

“ 1st, The two *Cristallines* were sepa-
“ rated from the *Socket* of the *Vitreous*
“ *Humour*; they were both opaque, hard,
“ diminished in their Bulk, and sufficiently
“ resembling two small yellowish *Lentiles*,
“ but differently placed in the Fund of
“ the *Eye*, one being laid under the *Vitre-*
“ *ous Humour* between the Membrane of
“ the *Vitreous Humour* and the *Retina*;
“ the other was lodged sideways in the
“ *Posterior Hemisphere* and at the Bottom
“ of the *Vitreous Humour*; upon the least
“ Impression made on the *Globe* of the
“ *Eye* towards the *Optick Nerve*, this
“ *Cristalline* repassed from the inferior Part
“ of this *Humour* to the Fore-part, and
“ it seemed to float in the Middle of the
“ said *Humour*.

“ 2^{dly}, THE *Retina* in both *Eyes* had
“ acquired a more solid Consistence, than
“ it naturally has. This Change, perhaps,
“ had no Relation with the Depression of
“ the *Cristalline*; and might be deemed a
“ particular Disease.

“ 3^{dly}, THE Membrane, which covers
“ the *Socket* of the *Vitreous Humour*, had
“ no little Cavity as usual, so that the
“ *Vitreous Humour* wanted its *Socket*, and
“ had assumed a *Lenticular* Form like that

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“ of the *Cristalline*. Besides, this Mem-
“ brane was interspersed with several whi-
“ tish Points, which we unanimously judg-
“ ed to be the *Cicatrices* of some light
“ Scratches that might have been done
“ by the *Needle* in the Operation, this
“ last Circumstance appearing in both
“ *Eyes*.

“ THESE are, Sir, the Observations you
“ required of me ; I communicate them
“ to you with the greatest Pleasure, and
“ have the Honour to be, Sir, your most
“ humble and obedient Servant.

Signed Morand the Son.

IF Mr. *Woolhouse's* Experiment be confronted with that of M. *Morand*, it may be easily observed that the *Cristalline* had been depressed, both in the *Cataract* of Mr. *Woolhouse* and in that of M. *Morand*; this is manifest from the *Cicatrice* of the Membrane of the *Vitreous Humour* observed by M. *Morand*, which may be compared to the Blemish mentioned by Mr. *Woolhouse*: In order to shew evidently that Mr. *Woolhouse's* Blemish is nothing but a *Cicatrice*, like that of M. *Morand*, let the Words of the Relation be examined: There we found a small tough Membrane placed between the *Iris* and the *Ciliar Ligament*, the *Cristalline Humour* was found and transparent,

transparent, except a little Blemish in the Middle of it, which was occasioned by the Rubbing of the extraneous Body. Mr. *Woolhouse* does not tell us that he had examined the *Socket* of the *Vitreous Humour*, and the Experiment made by M. *Morand* confirms that of many others; by which it appears that the *Socket* of the *Vitreous Humour* assumes the Form of the *Cristalline*, after the Couching of a *Cataract*. Hence it may be inferred; that Mr. *Woolhouse*; instead of the sound and transparent *Cristalline*; had taken that Body which had only the Appearance of it. Besides; Mr. *Woolhouse* says the Blemish was in the Middle of the *Cristalline*, that it was occasioned by the Rubbing of the extraneous Body; though he had just asserted, this extraneous Body, which he called a tough Membrane; was not in the Middle; but between the *Iris* and the *Ciliar Ligament*: Hence we may conclude that the Blemish in the Middle was not produced by the extraneous Body which was distant from it; and that his tough Membrane was the *Cristalline* dried and diminished in Bulk; as appears from M. *Morand's* Observation. However, it is not strange, when operated *Eyes* have been opened, that sometimes there has been found a *Membranous Shread*, which had not the Form of the *Cristalline*; but this has only

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happened to those who have had their *Cataract* hacked and broke to Pieces before its full Maturity, as I shall observe at the End of this Reply.

As to the History of one Mr. *Pinson*, related by the Author of the *Criticism*, concerning the Dissection of the *Eyes* of a blind Girl, he says in one of them the *Cristalline* was softish, and in couching it fell to Pieces, which the Operator did not expect.

IN the other he says he found a Membrane considerably hard, and so firmly adherent to the *Ciliar Ligament*, that one might have broke and tore to Pieces the *Iris* with more Ease, than separate the Membrane; as to the first *Eye*, nothing more can be said, but what is already mentioned in my *Book*. As to the second, it perfectly agrees with that I have said of a *Membranous Cataract*; in my *Book*; viz. that it is not curable by the Operation, that it is a false *Cataract*, the Reader will find this Remark in my Description of it.

I SHALL end my Answer with a Remark on the Method used by *Celsus* in the Operation of the *Cataract*, which was, according to the Author of the Critical Letter, to hack and break it to Pieces. The Author has mutilated the Passage of *Celsus*, who says a *Cataract* must be couched intire; and, after it had been depressed, if it remounts,

mounts, it must be broke with the *Needle* into several Pieces ; for, says he, these Divisions will be covered with more Ease, and will offusk the *Sight* less. The Author of the Letter does not observe that *Celsus* does not recommend this last Manner of Operating, but when the *Cataract*, couched in the usual Manner, does not remain in the Place, where the Operator had lodged it.

It must be observed that *Celsus* does not determine the Nature of the *Cataract* which requires to be hacked and broke to Pieces, for in these Days this Science was little known ; but modern Operators have observed this Tearing a *Cataract* to Pieces is not to be performed, but when the *Cataract* is soft, and the Operator is mistaken in its Maturity. In this Case, it is in vain to look for the *Cristalline* after Death in the operated *Eye*; it cannot be found, because it had been divided, and the *Vitreous Humour* is observed to assume a *Lenticular* Form opposite the Hole of the *Pupil*, and may be easily taken for the *Cristalline*, as happened in the several Experiments cited in the critical Letter, because the *Vitreous Humour* had not been carefully examined in those Experiments.



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